NOTES ON THE GENUS *CLERODENDRUM* (*VERBENACEAE*). IV

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This is a continuation of the notes begun on this genus in Phytologia 57: 157 (1985) and continued in each following issue of this journal.

The generic name, *Clerodendrum*, is taken from the Greek kleros, chance, and dendron, tree, or chance-tree, in allusion to the ancient belief that some species (e.g., *C. fortunatum* L.) brought good luck and had healing virtues, while others (e.g., *C. infortunatum* L.) brought bad luck. Wittstein (1852) expresses it thus: "in Bezug auf die heilsamen und nachteiligen Wirkungen der verschiedenen Species dieser Gattung: *C. fortunatum* ist nämlich ein gutes Arzneimittel, *C. calamitosum* u. *C. infortunatum* wirken gefährlich."

In the Linnean sexual system the genus is classified in the *Didynamia Angiospermia* or, later, in the *Personatae*. Reichenbach placed it in his *Labiatae*, Necker in the *Plasygophyta*, Rühling in the *Ringentes Halleriae*, Endlicher in the *Lantaneae*, Jussieu in the *Vitices*, and Adanson in the *Verbenaceae*. By Salisbury (1796) it was classified in his *Scrophulareae*.

It may be of interest to note here that there is a genus *Clerodendranthus* Kudo in the *Lamiaceae*, regarded by some authors as congeneric with *Orthosiphon* Benth., a genus of some 30 species in tropical Africa and 20 species in eastern Asia and Indonesia.

The genus *Douglassia* of Houston and of Adanson and Miller and *Duglassia* of Ammian and of Houston, according to Wittstein (1852), were named in honor of David Douglas (1798--1834) and Francis Douglas (1815--1886). *Volkameria* was named for Johann Christoph Volckamer (1644--1720), a German botanist. *Ovieda* was named in commemoration of Gonzalo Fernandez de Ovieda y Valdés (1478--1557). The *Cornacchinia* of Endlicher and of Savi was named for Marc Cornacchini, professor of medicine at Pisa in the first half of the 1th century.

It should perhaps also be mentioned here that the *Volkameria* of Patrick Browne (1756) is a synonym of *Clethra* Gron. in the *Clethraceae* while the *Volkameria* of J. Burman (1874) and of N. L. Burman (1968), also referred to in the synonymy of *Clerodendrum*, is a synonym of *Capparis* L. in the *Capparidaceae*. The *Volkmannia* of Sternberg (1825) belongs in the synonymy of *Naias* Juss. in the *Naiadaceae*. *Kempfera* Adans. is a synonym of *Ghinia* Schreb.

The pollen description given in the last previous installment of these notes is taken from Huang (1972) and is doubtless based only on the Taiwanese species of the genus. Anisophylly in the genus is exhibited in some species where the leaves on the upper side of the branches are much smaller than those on the lower side, thereby not shading the latter as much as if they were of equal size. There seems to be no twisting of the twigs so as to place all sets of leaves in a horizontal plane as is seen in such non-verbenaceous genera as *Ixora*, *Psychotria*, *Eugenia*, etc.

Corner (1952) tells us that the flowers in most species of *Clero-*

dendrum are mostly pollinated by butterflies and bees which suck the nectar from the base of the corolla-tube. In most species the stamens and style project from the lower side of the flower, the stamens forming a landing platform for the visiting insects, and the pollen is deposited on and is carried away on the underside of the insect. The flowers usually last more than a single day; the stamens mature first, then curl back under the flower, leaving the style, previously held beneath the stamens, to replace them as the landing platform. This does not apply to the species in the section *Cyclonema* where the stamens and style arch over the top of the flower and one of the petals is modified into a lower lip which serves as the landing platform fo the visiting insect -- the pollen then being carried on the upper side of the insect. Red-flowered species, of course, are mostly pollinated bv birds.

The fruits are characteristically eaten by birds and the seeds thus disseminated, and this applies to the species in all sections. "In most species the calyx develops into a most characteristic red, shiny, fleshy star on which the black berry is seated.....The green berries, in ripening, often pass through metallic shades of green and purple before turning black." It is to be noted that the fruit is not a "berry" as Corner (and some other writers) describe it, but is invariably a drupe. The fruiting-calyx which he describes as though for the genus as a whole actually has the characteristics which he enumerates only in a few primarily Asiatic species.

Corner also states that "Among Indian and Malay peoples magical properties are attributed to many of the species. Their Malay names Panggil Panggil, Bunga Panggil, Sepanggil and Pepanggil, indicate a power of summoning spirits, and another of their names Setawar has been defined as a 'spiritual antiseptic'.....But whether Malays really distinguish the species by separate names and exactly why and how they have come to regard the plants in such a light are problems needing further investigation. It is said that the projecting stamens suggest beckoning arms and that the Malays use the plants for a magical summons when setting traps for animals like the mouse-deer."

It is worth noting that early herbalists often referred to one species of this genus as arbor fortunata and another as arbor infortunata, leading to Linnaeus' chose of specific epithets for two of his species. Rehder (1927) asserts that both of these species grow in Sri Lanka, but actually only *C. infortunatum* is found there; *C. fortunatum* is found in Assam, China, Tonkin, and Java, probably originally native only in China and introduced elsewhere for its supposed beneficial properties.

Martin (1946) confirms the fact that the seeds are without endosperm or else that the investing endosperm is "negligible". He includes the genus in a list of genera with an investing endosperm in an othewise non-investing family.

Shah, Poulose, & Unnikrishnan (1969) have studied the nodal anatomy of three species of *Clerodendrum*, each exhibiting a different type. Marsden & Bailey (1955) discuss in detail the dual nature of the leaf-traces in the genus. "They found two procambial strands, even in the young leaf primordia, and consequently defined a fourth type of node (in addition to the three proposed by Sinnott, 1914)

which exhibits a single gap through which two discrete strands supply the leaf-base. This fourth or '*Clerodendron*-type' of node has the midribs of one orthostichy of decussate-opposite leaves arise from two sympodial strands which supply no other midribs (Philipson & Balfour, 1963)." The other types (parastichy) are known as the *Piperaceae* type, the *Casuarinaceae* type, and the *Calycanthaceae* type.

There has been considerable controversy over the correct spelling of the generic name. Lawrence (1951) notes that "Authorities differ in usage as to the correct spelling of this generic name. Rehder (1949) et al. have used *Clerodendron*, but Linnaeus, the author of the name, used *Clerodendrum* in Species plantarum (p. 637, 1753) and in Genera plantarum, ed. 5 (no. 707. 1754). The spelling was changed by Adanson (1763) and so adopted by Bentham and Hooker (1876). However, the Rules (ed. 3) provide no authority for changing the original spelling employed by Linnaeus." Santapau (1961) has summed up the situation, saying "Most of our floras have adopted the spelling *Clerodendron*, and some botanists object to the change to *Clerodendrum* on the plea that etymologically the ending in *-on* is more correct. Linné gave *Clerodendrum* in his Sp. Pl. p. 637, 1753, and in Gen. Pl. p. 285, 1754; the same spelling was followed in the second and third editions of Species Plantarum published during the life of Linné. I have been unable to trace who the first author was to change the spelling to *Clerodendron*; but Sprengel in Syst. Veg. 1825 did use the altered spelling, and thereafter many authors follow Sprengel. It would appear, however, that in spite of the etymology of the word, Linné did not adopt the spelling *Clerodendrum* by chance, since he used it in all his major works from 1753 onwards. This spelling, then, is not an orthographic error, but an intentional selection on the part of Linné, and must be retained in accordance with Art. 73 of the Code." A glance at the generic synonymy (given in the first installment of this series) will show that Linnaeus actually used the spelling *Clerodendrum* as far back as 1737 when he deliberately changed the orthography of Burman's *Clerodendron*. Adanson also later adopted Burman's spelling in his 1763 work. Westman in 1744 used Burman's spelling and it was also used in edition 7 of the Genera Plantarum (1767). Perusal of the bibliography of the genus shows that no less than 258 authors have adopted *Clerodendron* and 144 have adopted *Clerodendrum*; Asher, Bocquillon, Carrière, Edgeworth, Melchior, Mohl, Nemnich, Plowden, Standley, Wallich, and Willdenow actually used both forms -- Plowden (1969) uses both spellings in the same work (*-um* on p. 247, *-on* on p. 41), while Carrière (1866) used *-on* in his text and *-um* on the illustrative plate. Both spellings have been used from 1737 to 1985.

The *-um* spelling is adopted in Linneus, Gen. Pl., ed. 1 (1737), 186, wd. 2 (1742), p. 290, ed. 3 (1743), p. 223, ed. 4 (1752), p. 323, ed. 5 (1754), p. 285, and ed. 6 (1764), p. 325, and in Sp. Pl., ed. 1 (1753), p. 637. In Gen. Pl., ed. 7 (1767) the *-um* spelling is used in the index and the *-on* spelling in the text. Willdenow (1802) spells it *-on* on p. 6 and *-um* on pp. 386--388. Article 71 of the Code states that there is ground for argument on the correct spelling of a Linnean generic name ONLY if the spelling differs in Sp. Pl., ed. 1, and Gen. Pl., ed. 5. Since the spelling adopted in both of

these works is *-um* there can be no valid argument.

In 1934--1936 I had occasion to examine carefully the material of *Clerodendrum* preserved in the Linnean Herbarium at the Linnean Society headquarters in London. Herewith are the results of my examination: In the Linnean Herbarium, under genus 784, *Cornutia*, specimen number "2" is unnamed, but bears on the top of the sheet the notation "*CLERODENDRUM*" [Mr. Savage stated to me at the time that this style of generic name annotation on the top of a sheet was a very old one of Linneus', later discarded] and "∋ India". The specimen is plainly *Clerodendrum incisum* var. *macrosiphon* (Hook. f.) C. B. Clarke. Jackson, in his notes on the Linnean Herbarium, asserts that the sheet is also annotated "Br", meaning Patrick Browne, and that the "India" really means "India [occid.]" It seems to me that this is incorrect. The species is not known from either the West Indies (where Patrick Brown collected) nor western India. The scrawl which he interpreted as "Br" is more probably the initial "D" and may well stand for "Dalman", as Jackson himself interprets a similar scrawl on the tenth specimen under *Vitex* ["*V. pinnata*"] from India.

In the Linnean Herbarium, under genus 788, *Volkameria*, sheet number "1" is annotated "aculeata" in Linneus' own handwriting and is plainly *Clerodendrum aculeatum* (L.) Schlecht. Sheet number "2" is also annotated as "aculeata" by Linneus, but seems, rather, to be *C. inerme* (L.) Gaertn. Sheet number "3" is labeled "inermis" in Linneus' handwriting and is plainly *C. inerme*. Sheet number "4" is also labeled "inermis" and is also plainly that species; it bears the additional notation: "(Vo.) *Douglassia* Houst. in Millero". Sheet number "5" is annotated "serrata" in Linneus' handwriting and has the additional notation "Clerodendr."; it is plainly *C. serratum* (L.) Moon. Sheet number "6" is labeled "scandens" in the handwriting of the younger Linneus (Linneus filius) and bears two tickets written by König, one reading "Volkameria Scandens. Folia bifaria, oppositis, corymbis laxis, spicatis ad altissima arboreo Scandens. Folia approximata undulata. Habitat ad Flum. magnum Monesi-Mote Kandal." and the other reading "Volkameria scandens. Habitat in vastis sylvia Zeylonae, super scandit arbores altissima eisque coronat suio floribus niveis. König 77." and on the reverse side "V. inermis, Scandens, fol. ramulis tomentosis, fol. cordatis-ovatis, glaberrimis. Pedunculi terminalibus: ramuli dichotomi." Jackson affirms that the note "König 77" is in the handwriting of Linneus filius. The specimen is plainly *Glossocarya scandens* (L. f.) Trimen.

In the Linnean Herbarium, under genus 789, we find that the generic name on the lower left-hand corner of the outside of the original genus cover is spelled "*Clerodendron*", while on the inside of the back cover it is spelled "*Clerodendrum*". The generic name is not repeated on sheets "1" to "7", but on sheets number "8" and "9" it appears as "*Clerodendrum*". Sheet number "1" is annotated as "infortunatum" in Linneus' handwriting. Sheet number "2" is labeled "fortunatum" also in Linneus' handwriting. Sheet number "3" is labeled "Phlomoides" in the handwriting of Linneus filius and also bears the additional notation "König". It is plainly *C. phlomidis* L. f. Sheet number "4" bears two fragments on the upper portion which, according to Jackson's notes, are the only Linnean ones on the sheet; the lower

specimen bears a notation in J. E. Smith's handwriting "2 e Batavia D. Banks. J. E. S." and was added afterwards according to Jackson; the sheet bears the name "calamitosum" in Linneus' handwriting at the bottom and it is plainly *C. calamitosum* L.

Sheet number "5" is annotated "paniculatum" in Linneus' hand and bears the additional notation "Juan bonge"; it is characterized by its triangular-lobed leaves and certainly represents what we now know as *C. paniculatum* L. Sheet number "6" is unnamed and bears no notes, but is plainly what we now call *C. philippinum* f. *multiplex* (Sweet) Mold. Sheet number "7" is also unnamed and bears no notes, and is also plainly *C. philippinum* f. *multiplex*. Sheet number "8" is unnamed, but bears the notations in Linneus' own handwriting [verified by Mr. Savage] "Knoxia ? scandens" and also "Knoxia 2 Browne 140.t.3.f.3." also in Linneus' handwriting. It is plainly *Aegiphila elata* Sw. Sheet number "9" is unnamed and bears no notations on its obverse (front) side, but on its reverse side it has in Linneus' own hand [verified by Mr. Savage!] "Clerodendrum", then in darker ink and a heavier pen [but also in Linneus' hand according to Savage!] "No. 8 a Millero" and then in the former light ink and fine pen "Cal. amplius 4 fidus obtusus. Cor. 4-fidus. Stam. 4 longiss. Stylus capillaris semi-bifidus." It must have been collected by Philip Miller for Linneus in the Chelsea Garden. It is plainly *Aegiphila deppeana* Steud.

Savage (1945) gives "807" as the generic number for *Ovieda*, "809" for *Volkameria*, and "810" for *Clerodendrum*.

Loudon (1830) divided the genus *Clerodendrum* into 2 sections: (1) *Quinquedentata* with the calyx-rim few-toothed or subentire, and (2) *Quinquepartita* with the calyx 5-parted. He kept *Volkameria* separate to include *V. aculeata* L. and *V. japonica* Thunb.

Following the excellent work of Briquet (1895), I am accepting, with a few modifications, his classification:

Subgenus 1. *Volkameria* (L.) Briq. Corolla infundibular, its tube less than 2.5 cm. long, the limb 5-parted; pyrenes plainly united in pairs; petioles usually spinescent after the blade is shed. Example: *C. aculeatum* (L.) Schlecht.

Subgenus 2. *Euclerodendron* (Schau.) Thomas. Corolla infundibular, its tube straight, less than 2.5 cm. long, the limb spreading, 5-parted, the lobes subequal; pyrenes free or only very obscurely united.

Section 1. *Axilliflora* Schau. Cymes few-flowered, shorter than or as long as the leaves, the upper ones building a bracteose panicle; fruiting-calyx short-cupuliform, hardly enlarged in fruit. Examples: *C. ternifolium* H.B.K., *C. inerme* (L.) Gaertn., *C. rusbyi* Mold., *C. glabrum* E. Mey., *C. umbellatum* Poir., *C. tomentosum* (Vent.) R. Br., *C. calamitosum* L.

Section 2. *Penduliflora* Schau. Cymes grouped in a terminal, naked, loose, more or less pendent panicle; fruiting-calyx greatly enlarged. Examples: *C. nutans* Jack, *C. wallichii* Merr.

Section 3. *Densiflora* Schau. Cymes in compact panicles building 1 or more small heads, axillary or pseudo-terminal; fruiting-calyx enlarged. Examples: *C. philippinum* Schau., *C. lindleyi* Decaisne, *C. bungei* Steud.

Section 4. *Paniculatae* Schau. Cymes in capitate or subumbelliform terminal panicles; leaves mostly hairy, not at all or only obscurely squamulose beneath; fruiting-calyx enlarged. Examples: C. *infortunatum* L., C. *viscosum* Vent., C. *villosum* Blume.

Section 5. *Squamata* Schau. Cymes in broad, open, loose, more or less naked, terminal panicles; leaf-blades definitely squamulose beneath; petioles joined by a thick ring of hairs. Examples: C. *kaempferi*(Jacq.) Sieb., C. *japonicum* (Thunb.) Sweet, C. *intermedium* Cham.

Subgenus 3. *Cyclonema* (Hochst.) Gürke. Corolla-tube plainly zygomorphic, often swollen, bent, usually less than 2.5 cm. long, its limb plainly bilabiate, obliquely 5-lobed, the anterior lobes exceeding the posterior ones and more or less concave; stamens arching upwards. Examples: C. *serratum* (L.) Moon, C. *myricoides* (Hochst.) R. Br., C. *discolor* (Klotzsch) Vatke, C. *ugandense* Prain

Subgenus 4. *Cornacchinia* (Savi) Briq. Calyx 4- or 5-lobed; ovary spongy, wrinkled. Example: C. *acerbianum* (Visian.) Benth.

Subgenus 5. *Siphonanthus* (L.) Schau. Corolla-tube very long, over 5 cm. in length. Examples: C. *indicum* (L.) Kuntze, C. *incisum* Klotzsch

Briquet's Section *Racemiflora* Schau. seems to belong in Subgenus 3, *Cyclonema*.

If the classification by Thomas (1936) is combined with that of Briquet, a key to the supraspecific groups may be written as follows:

1. Corolla-tube zygomorphic, conspicuously swollen in front, more or split to the middle posteriorly, the limb zygomorphic and bilabiate, the anterior lobe much larger than the others and arched; calyx-lobes mostly round; fruit not separating. Subgenus *Cyclonema*.
2. Calyx-lobes acute; cymes axillary. Section *Pleurocymosa*.
2a. Calyx-lobes round; cymes forming a terminal panicle.
3. Panicle more or less foliose, loosely branched.
4. Calyx-lobes narrowly elongate, about 4 mm. long, hairy within; corolla-tube about 12 mm. long. Section *Oligocymosa*.
4a. Calyx-lobes semicircular to semi-elliptic, about 2 mm. long, not hairy within; corolla-tube 8--10 mm. long. Section *Chaunocymosa*.
3a. Panicle not foliose, with short side branches, almost spicate. Section *Stacheocymosa*.

1a. Corolla-tube actinomorphic, straight, narrow, the limb actinomorphic or slightly zygomorphic; calyx-lobes acute; fruit separating or rarely coherent in 2's.
5. Calyx-lobes only 3. Subgenus *Tridens*.
5a. Calyx-lobes more than 3.
6. Calyx-lobes 4 or 5; ovary spongy, wrinkled. Subgenus *Cornacchinia*.
6a. Calyx-lobes 5; ovary smooth
7. Pyrenes coherent in pairs of 2. Subgenus *Volkameria*.
7a. Fruit separating into 4 separate pyrenes. Subgenus *Eucleodendron*.

8. Leaf-blades covered with conspicuous shield-like resinous glands beneath. Section *Squamata*.
8a. Leaf-blades usually not conspicuously squamose beneath.
9. Natives of Asia or the Americas.
10. Corolla-tube very long, over 5 cm. in length, the limb somewhat oblique. Section *Siphonanthus*.
10a. Corolla-tube less than 5 cm. long.
11. cymes axillary or pseudo-terminal.
12. Cymes few-flowered, as long as or shorter than the subtending leaves, the upper ones sometimes forming a foliose panicle. Section *Axilliflora*.
12a. Cymes in densely congested panicles, forming 1 or more heads. Section *Densiflora*.
11a. Cymes terminal.
13. Inflorescence a naked, loose, more or less pendent panicle; fruiting-calyx accrescent. Section *Pendulifiora*.
13a, Inflorescence not pendulous.
14. Inflorescence erect, raceme-like, very bracteose; fruiting-calyx campanulate, not much accrescent. Section *Racemiflora*.
14a. Inflorescence in the form of capitate or umbelloid panicles; fruiting-calyx accrescent. Section *Paniculata*.
9a. Natives of Africa.
15. Calyx split 1/2 or more, 5--30 mm. long, ampliate from the base, open-campanulate, the lobes often colored like leaves; fruiting-calyx larger than the fruit; branches mostly hollow.
16. Calyx about 10 mm. long, split to the base, the lobes narrowly lanceolate-linear; stem longitudinally furrowed; leaf-blades toothed. Section *Stenocalyx*.
16a. Calyx split 1/2 to 4/5 its length, the lobes ovate or lanceolate, acute; stem not furrowed.
17. Calyx round, 5--10 mm. long, split 1/2 to 2/3 its length, the lobes lanceolate, awl-shaped or acute to obtuse; calyx not articulate; corolla-tube less than 2 cm. long. Section *Oxycalyx*.
18. Calyx-lobes obtuse. Subsection *Obtusata*.
18a. Calyx-lobes not obtuse.
19. Calyx-lobes acuminate. Subsection *Acuminata*.
19a. Calyx-lobes apiculate. Subsection *Apiculata*.
17a. Calyx more or less pentagonal, 10--30 mm. long, split 2/5 to 4/5 its length, mostly articulated into a spheric-tubular base and a campanulate limb, the lobes ovate, colored like petals; corolla-tube 1.5--15 cm. long. Section *Macrocalyx*.
20. Inflorescence capitate. Subsection *Capitata*.
20a. Inflorescence not capitate.
21. Inflorescence spicate. Subsection *Spicata*.
21a. Inflorescence loosely cymose-paniculate. Subsection *Laxiflora*.

15a. Calyx shallowly emarginate to split 1/2 its length, 1.5--10 mm. long, tubular-campanulate, mostly elongate; fruiting-calyx smaller than the fruit [except in *Cylindrocalyx*]; branches usually not hollow.

22. Corolla-tube at least 4 or 5 times as long as the calyx; flower-buds opening laterally; stamens and pistil surpassing the corolla-tube by 3--4 cm.; leaves sessile or subsessile, elongate, strongly sinuate. Section *Konocalyx*.

22a. Corolla-tube usually only 1--3 times as long as the calyx; flower-buds opening terminally; stamens and pistil surpassing the corolla-tube only by 0.5--2.5 cm.; leaves plainly petiolate.

23. Calyx about 1 cm. long and 4 mm. wide, tubular, pentagonal, yellow-green, foliaceous, split 1/4 to 1/3 its length; leaves the same color on both surfaces, the venation not very prominent; branches unarmed; fruiting-calyx larger than the fruit. Section *Cylindrocalyx*.

23a. Calyx 1.5--10 mm. long, about 2 mm. wide, rarely wider, round; leaves differently colored on the 2 surfaces, the venation conspicuous; branches mostly armed with thorns; fruiting-calyx smaller than the fruit.

24. Calyx cylindric-tubular, the sides parallel, 4--10 mm. long, split 1/5 to 1/4 its length, with more or less plain longitudinal ribs, the lobes short-triangular, not divergent; leaves never cordate. Section *Siphonocalyx*.

25. Inflorescence capitate. Subsection *Cephalata*.

25a. Inflorescence loosely paniculate, not capitate.

26. Panicles foliose. Subsection *Phyllothyrsoidea*.

26a. Panicles not foliose. Subsection *Thyrsoidea*.

24a. Calyx not cylindric-tubular.

27. Calyx very short-campanulate, scaly, 2--4 mm. long, split 1/3 to 1/2 its length, the lobes wide, divergent, often colored; fruiting-calyx ampliate. Section *Eurycalyx*.

27a. Calyx campanulate-infundibular, the base more or less tubular but ampliate from the middle upwards, 1.5--6 mm. long, split about 1/3 its length, the lobes elongate, acute, more or less spreading; fruiting-calyx more or less narrowly infundibular.

28. Plants glabrous with more or less yellow-brown articulate appressed-silky hairs even on the flower-buds; leaf-blades cuneate to cordate; stem often margined, with thorns; leaf-margins never involute; sinuses between the calyx-lobes acute. Section *Microcalyx*.

29. Inflorescence paniculate; buds glabrous.

30. Panicles open and loose. Subsection *Paniculata*.

30a. Panicles racemiform, on a long peduncle; stems hollow. Subsection *Corymbiflora*.

29a. Inflorescence racemiform, many-headed; flower-buds and young parts with deciduous yellow-brown hair. Subsection *Pluricapitata*.

28a. Plants glabrous or with more or less white hairs; flower-buds glabrous; leaves mostly small, more or less cuneately narrowed into the petiole; stems always round,

unarmed; leaf-margins more or less involute; sinuses between the calyx-lobes more or less rounded. Section *Odontocalyx*.

Kuntze (1891) discusses in detail his concept of the synonymy of the genus: "*Clerodendron* L. (1737) g. pl. 517 (1753; 1 Art) incl. *Ovieda* L. (1737) g. pl. 170 genus erroneum ob stamina 5 false descripta eronee positum') incl. *Volkameria* L. 1737 non 1735* (1753: 2 Arten) & *Ligustroides* L., 'Houst.' hort. Cliff. 480 (1738) & *Siphonanthemum* Amman 1741 act. ac. petr. 'ad annam 1736' p. 213-215 = *Siphonantha* L. 1742. *Volkameria* würde zunächst zu gelten haben, wenn die bisherige Annahme richtig wäre, dass *Volkameria* L. 1735 = L. 1737 wäre; aber der Name von 1735 gilt für *Sesamum* L. 1737! Dan würde *Siphonanthemum* Amm. '1736' gelten, wenn dieser Name wirklich 1736 publicirt worden wäre; das ist aber nicht der Fall, denn dieser Publicationen der Petersburger Academie erschienen bis 9 Jahre später (z.B., '1738' erst 1747) als nachdem sie der Academie überreicht worden waren; vol VIII ad annum 1736 trägt als Publicationsdatum auf der Titel unten den Datum 1741 und Amman erwähnt in seinen Briefen an Linné bis 1740 diese in der Mitte des vol VIII stehende Publication noch nicht, während er sonst an Linné doch alles derartige mitheilte; vergl. Smith Correspondence of Linnaeus II 191--203. Es kommen nun noch *Clerodendron* und *Ovieda* in Concurrenz: *Ovieda* ist zwar bereits auf Seite 170 in der 5. Classe veröffentlicht und würde zu gelten haben, wenn die günstigere Stellung nicht eben bloss durch den Fehler '5 Stamina' herbeigeführt und so *Ovieda* nur von dem didynamen *Clerodendron* entfernt worden wäre. Mithin bleibt *Clerodendron* bestehen. *Ligustroides* L. 1738 angeblich 1737 publicirt ist dem Synonym nach *Cl. aculeatum* Gris. (L.)" I never cease to be amazed at the meticulous care with which Otto Kuntze documents his exhaustive bibliographic research, not only in regard to the present genera, but on so much of the entire then-known plant world! It is most unfortunate, in my opinion, that his guiding principle of strict priority of publication to validate the acceptance of scientific names is not followed today.

In this connection, it is of interest to note Poiret's (1804) argument in favor of the separation of *Clerodendrum* and *Volkameria* as accepted valid genera. He avers that in *Clerodendrum* the pistil is "terminé par un stigmate simple" and the fruit "contenent quatre offlets monospermes". while in *Volkameria* "le stigmate est bifide, & que chacun des offlets renfermés dans les baies contient deux semences".

Griffith (1854) makes an interesting observation: "The situation of the flowers in *Volkameria* is certainly reversed, neither can I yet tell what is the cause of this. The 5th petal being certainly next the axis. That the fissure by which the corolla is rendered unilabiate is carried thro' the 2 petals corresponding to the upper lip of other plants of the Order is proved, 1st by the aestivation and 2nd by the situation of the stamina. There is certainly some difference between the aestivation of this Order, and of *Labiatae*, one lobe of the upper lip of *Volkameria* being altogether internal."

Firminger (1918) says of *Clerodendrum*: "A genus that comprises some of the most beautiful plants with which our gardens [in India] are adorned. Nothing can possibly surpass the loveliness of some of

the species." He goes on to quote Lindley's observation: "Whoever.. shall investigate the true distinctions between the beautiful species of *Clerodendron* with scarlet inflorescence, will find as ample a harvest of confusion to be reaped as he can desire." Firminger also states that "Some [species] occasionally yield seed [in cultivation], and all may be propagated by cuttings put down in the rains or from offsets or suckers which most species send up abundantly....Flowers are produced from the top of the current season's shoots; therefore cut away wood of the previous season to within two or three buds of the base." Grindal (1960) tells us that in India cuttings of these plants are placed in the ground for making hedges in February. Baines (1877) and Duro (1845) provide very detailed instructions on the proper culture of the many cultivated species in greenhouses in temperate climates. Smiley (1960), however, warns that outdoors they tend "to become weedy and aggressive.....hardly suitable for permanent planting, being difficult to maintain in a desirable form."

Corner (1964) reminds us that "Among dicotyledons there are numerous and outstanding tropical genera that consist of large trees, small trees, shrubs, herbs. and in some cases, even climbers, showing how a large part of the spectrum of plant form on land has been evolved within the limits of a single genus" and gives *Clerodendrum* as a good example (along with such genera as *Cassia*, *Gardenia*, *Hibiscus*, *Randia*, *Solanum*, and *Vernonia*).

Junell (1934) discusses the gynoecium morphology of the genus on the basis of 9 species representing each of the 5 subgenera which he recognizes. He comments that "Mit Ausnahme der Sektion *Volkameria* besitzen alle *Clerodendron*-Arten eine Frucht, die aus vier einsamigen Steinen besteht. Bei der Sektion *Volkameria* sind die Samen paarweise vereinigt zu zwei lateralen, zweisamigen Steinen." He also notes that "Die Entwicklung der Staubblätter verläuft normal. Die Pollenbildung ist simultan.....Die Entwicklung der Embryosacks erfolgt nach dem Normaltypus," but the actual form of the embryo-sac differs greatly (cfr. under *C. speciosissimum* and *C. ugandense*, the former a species of *Euclerodendron* and the latter of *Cyclonema*).

Junell goes on to say that "Der Fruchtknotenbau ist bei den einzelnen Sektionen ziemlich verschieden. Für alle untersuchten Arten gemeinsam ist der Umstand, dass die beiden Plazenten erst unten in der Nähe des Grundes der Fruchtknotenhöhle verwachsen." In *Volkameria* "Die mittleren Partien der Fruchtblätter sind ein wenig verdickt. Die Fruchtblattränder ragen verhältnissmässig weit zwischen sehr seichte Furchen ein. Der Fruchtknoten ist....angowöhnlich klein." In *Euclerodendron* he notes that "Von den Fruchtblattmitten dringen Ausbauchungen in der Plazenten ein. Dadurch dass die Fruchtblätter nicht an der ganzen Strecke, wo sie einander anliegen, miteinander verwachsen sind, werden die Plazenten.....gespalten. Die Fruchtblattränder sind mit gut ausgebildeten leitendem Gewebe versehen, das den verhältnismässig grossen, hemianatropen Samenanlagen gegen die Mikropyle hin folgt. Auf den Plazenten und die Fruchtblatträndern befinden sich grosse Drüsen." In *Cyclonema* "Bei Betrachtung der Schnitte fallen unmittelbar die ausserordentlich grossen und dicken Fruchtblattränder auf. Besonders im oberen Teil des Fruchtknotens treten sie stark hervor. Sie breiten sich über die Samenanlagen aus,

welche ungewöhnlich tief befestigt sind und nicht in den oberen Teil des Fruchtknotens hinaufreichen.....Die Samenanlagen sind an der Plazenta mit Hilfe eines langen, gekrümmten Funikulus befestigt. Zufolge der Anschwellung der Fruchtblattränder muss der Funikulus unmittelbar, nachdem er die Plazenta verlassen hat, sich ungefähr in rechtem Winkel krümmen.....Dadurch wird das Plazentaleitbündel beim Übergang zur Samenanlage stark S-förmig gekrümmt.....der Funikulus [geht] unmittelbar oberhalb der Mitte der Samenanlage aus. Keine Furchen dringen in die Plazenten ein.

"Die dicken Fruchtblattränder sind mit deutlich ausgebildeten leitendem Gewebe ausgerüstet. Im ubteren Teil des Griffels wachsen sie Pollenschläuche in einem Griffelkanal, dessen Wände mit grossen Drüsenzellen besetzt sind, dis bisweilen zu kleinen Drüsenhaaren auswachsen. Beim Übergang dieses Kanals in die Fruchtknotenhöhle... setzt das Drüsengewebe seitlich fort, verläuft auf der Oberseite der eingebogenen Fruchtblattränder und bildet an den eigentlichen Fruchtblattränder entlang eine verhältnismässig breite Zone nach unten." In *Cornacchinia* he notes that "In die Plazenten dringen seichte Furchen ein. Die mittleren Partien der Fruchtblätter sind nur ganz wenig verdickt." In *Siphonanthus* "Von den Fruchtblattmitten werden Ausbäuchungen gebildet. Die Fruchtblattränder sind verhältnismässig dünn und die leitendem Gewebe versehen. Keine Furchen dringen in die Plazenten ein."

Dop & Duffas (1928) have investigated the water-production by certain cells in unopened flower-buds of C. *trichotomum* by whose pressure the calyx eventually opens up.

Sharma & Mukhopadhyay (1963) discuss the problem of varying chromosome numbers in *Clerodendrum*: "Species of *Clerodendron* studied by previous authors show a range of chromosome numbers between 24 and 108. The haploid numbers so far recorded are 12 and 23. In the present investigation 2n = 52 chromosome have been seen in C. *infortunatum* and all its varieties as well as C. *minahassae*, C. *fragrans*, C. *nutans*, C. *siphonanthus* and C. *squamatum*. 2n = 46 chromosomes have been found in C. *thomsonae* var. I, C. *inerme* and C. *splendens* whereas 2n = 48 is present in another variety of C. *thomsonae*. C. *ugandense* shows a somatic chromosome number as high as 184. The number 2n = 30, noted in the present work, is the lowest of all species worked out in the present investigation. In addition to the haploid numbers 12 and 23 recorded previously.....the present investigation provides evidences of the existence of two more haploid numbers i.e. 26 and 15... The number 2n = 184, being a multiple of 23, once more indicates the occurrence of polyploidy" in the genus "and is the highest number so far noted. The nature of [the] origin of *Clerodendron*, whether mono- or polyphyletic, is yet to be ascertained." Emberger (1960) and Riley (1963) give the sporophytic numbers as 24, 26, 46, 48, 60, ca. 92, and 108. It must always be borne in mind that some of these determinations may be based on misidentifications of the plant material being investigated -- e.g., one of the so-called "varieties" of C. *thomsonae* mentioned above may well actually have been C. *umbellatum* Poir., a species very widely cultivated as "C. *thomsonae*".

Dop (1921) discusses the geographic distribution and affinities of the Indochinese species. Crevost & Petelot (1934) assert that *Clero-*

dendrum comprises a "Groupe d'arbres ou d'arbrisseaux répartis dans les régions tropicales et dont les vertus thérapeutiques dans l'ordre des traitements des affections syphilitiques semblent identiques."

Vyas (1964) describes a *Clerodendrum-Capparis* ecologic zone at 1300--1500 m. altitude in the hills of Rajasthan, India. Rao & his associates (1963) report that *Clerodendrum*, with *Carissa* and *Securinaga*, forms the principal ecologic scrub formation in raised stony ground on Rameswarem Island, India, and that there is a *Clerodendrum-Acanthus* association in the salt-pan areas of this island. They report that *Clerodendrum* and *Acanthus* together form a distinct belt next to the mangrove association on the saline flats of the island, followed landwards by the *Fimbristylis-Cyperus* belt. The *Clerodendrum* species here referred to is undoubtedly *C. inerme*.

Puri (1960) asserts that the sal (*Shorea robusta*) tropical, moist, deciduous forests of Uttar Pradesh, India, have a groundcover of dense *Clerodendrum* and *Mallotus*, as well as heavy grasses, in areas of dry subsoil, frosted regeneration, with pure stands of low-quality crops on the clay alluvium; areas of wet subsoil have *Calamus* and exhibit drought mortality. *Clerodendrum* is common in the lower canopy of sal forests in Assam. Snowder (1953) found it common in subtropical communities of fire-swept bush- and woodlands in Uganda.

Bor & Raizada (1954) aver that "The Clerodendrons are great favourites in Indian gardens on account of their showy flowers and often handsome foliage. [But] They never show to such advantage as they do in their natural homes in the gloom of the evergreen forest where they develop their beautiful panicles to perfection."

Malaviya (1963) discusses the occurrence of stone-cells in 12 species of the genus commonly cultivated in Bombay gardens. She reports that they seem to be present only in three species where the sclerenchyma or phloem fibers are absent. The stone-cells give mechanical strength, and the presence of some kind of crystals in them suggests a repository of excretory or secretory products. She found that *C. infortunatum*, *C. minahassae*, *C. philippinum*, and *C. splendens* have brachysclereids developed from transformed parenchyma cells of the cortex or pith, while *C. aculeatum* and *C. inerme* have spheroidal sclereids developed from converted collenchyma cells of the cortex.

Winter characters of the twigs, buds, leaf-scars, and pith are described by Trelease (1931) as though for the whole genus, but are based solely on examination of a single cultivated species, *C. trichotomum*. This is a perfect example of many morphologic, physiologic, genetic, and ecologic descriptions which are reported as though applying to a whole genus when actually they are based on examination of only one or a few (often even unrepresentative) species. In the present case examination of one out of approximately 570 taxa can hardly be regarded as producing "generic" characters!

Takhtajan (1969) lists *Clerodendrum* as a member genus of the so-called Boreal-Tertiary angiosperm flora. At least seven species are known from fossil remains: *C. europaeum* Ettingsh. from the Early Tertiary of England, *C. latifolium* Friedrich from the Oligocene of Germany, *C. robustum* Klotzsch from the Pleistocene of the Cameroons, *C. serratifolium* Friedrich from the Oligocene of Germany, *C. serratum* (L.) Moon from the Lower Pliocene of France, and *C. thomasii* Mold.

from the Pleistocene of the Cameroons. Wolfe (1969) reports an unnamed species of the genus from the Middle Miocene of northwestern North America on the basis of fossilized pollen material.

Van der Pijl (1969) affirms that the calyx (in some species of the genus) provides contrasting color for essentially black fruits, as do the red arils sometimes seen in other groups, serving to attract birds to effect seed dissemination.

In their work on myrmecophily in plants De Beaufort & Schnell (1966) list the following species of *Clerodendrum* known to them as exhibiting this interesting adaptation: *C. angolense* GÜrke, *C. capitatum* (Willd.) Schum. & Thonn., *C. grandifolium* GÜrke, *C. speciosissimum* Van Geert, *C. triplinerve* Rolfe, and perhaps also *C. guerkei* J. G. Baker. They note that "Ces espèces ont en commun des tiges creuses sur une grande longuer, parfois un peu renflées localmente, et avec, dans certains cas, des pores, de position variable, et parfois des cicatrices alignees avec ceux-ci." De Wildeman (1930) also discusses this fascinating subject. Actually, to be added to the above list of species are the Asiatic *C. fistulosum* Becc. and *C. phyllomega* var. *myrmecophilum* (Ridl.) Mold.

In speaking of cultivated species of *Clerodendrum* Synge (1956) notes that "The often charmingly fragrant flowers have two prominent characteristics, namely, the very frequently long, slender tube of the corolla -- in some species 4 or 5 in. long; and the much exserted stamens which sometimes stand out over 2 in. beyond the corolla. The genus includes undoubtedly some of the most impressive and gorgeously coloured of stove and greenhouse plants." He avers that for the climbing species "A mixture of equal parts of peat and loam, with a little leaf-mould or decomposed manure and some charcoal or sand" is most suitable. The shrubby species "should be cut close back soon after flowering, and be kept somewhat dry during the winter, in a temperature of about 55° F." Propagation, he says, should be by cuttings "put in when the plants are cut down" which will root readily. These cuttings are to consist of 3--6-inch long sections of the stems or side branches, "inserted in sandy soil, watered, and then plunged in a bottom heat of 70° F." If propagation is by seed, these may be sown when they ripen, or in the spring, and will probably flower in the second season. "The climbing varieties do not root quite so readily" and the cuttings, when planted in sand, should be covered with a bell-jar. He continues with many more valuable details on the cultivation of glorybowers. Bose (1965) recommends them for large-potting. Woodrow (1910) asserts that many species are "of easy culture in ordinary good garden soil, regularly watered and slightly shaded" in India.

Bailey (1972) refers to *Clerodendrum* as "Excellent outdoors in warmer parts of the U. S. They need well-drained garden soil. Twining species are valuable in cool to intermediate greenhouses, where they need good light without strong sun, high humidity and Basic Potting Mixture. Propagate by seeds or cuttings" of half-ripened wood kept at a temperature of about 70° F."

Gibbs (1974) reports steroles present, as well as D-mannitol (a sugar alcohol) in at least some investigated species; tannins, L-bornesitol, and leucoanthocyanin are absent; saponins are present or

"probably present", as are triterpenoid saponins and/or sapogenins and other triterpenes. Nes and his associates (1977) found 24-beta-ethylsterol present.

Morton (1977) reports that the exported roots of *Rauvolfia serpentina*, as they arrive for entry into the United States, are often adulterated at their source with the stems of *Clerodendrum* species.

The genus is reported as an escape by Dean (1961) and Clark (1971) in the United States. I have confirmed this for the states of North and South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, and Texas (1942, 1949, 1959, 1971).

The protandry of the flowers is compared to that of *Aeschynanthus hookeri* Clarke by Tirunarayana Iyengar (1924). Hildrum (1970) found that short daylight and treatment with 0.5--1 percent CCC resulted in earlier flowering, while long daylight days inhibited flowering and stimulated vegetative growth and taller stature. Howes (1974) reports that the genus has flowers, in general, attractive to butterflies, who doubtless aid in pollination.

In regard to the puzzling *Clerodendron epiphyticum* Standl., Williams (1970) cites *Brenes 12648* and *Lankester 1296* (type) from Costa Rica, commenting that "The specimens cited are almost certainly neither *Verbenaceae* nor are they *Scrophulariaceae* and perhaps represent two other families. The species was described by Standley with considerable hesitation and can perhaps never be placed unless by chance." Nevertheless, two years later (1972) he placed it in the genus *Gibsoniothamnus* in the *Scrophulariaceae*, along with *C. mimicum* Standl., *C. moldenkeanum* Standl. & Steyerm., and *C. pithecobium* Standl. & Steyerm.

Considering the very wide geographic range of *Clerodendrum*, it is not surprising to find a plethora of common and vernacular names reported for it as a group. Included are "brinco de ama", "brinco de dama", "bunga panggil", "chance-tree", "clérodendre", "clérodendron", "clerodendrons", "fausse-volkamere". "flowers of magic", "fortune", "glory bower", "glorybower", "glory-bower", "glorybowers", "glory tree", "glorytree", "glory vine", "Glücksbaum", "guardia civil", "jaman quina", "Kashmire-bouquet", "kembang boegana", "loosbaum", "Losbaum", "lotboom", "mbududhla", "oviède", "oviedée", "oviedone", "pagoda-flower", "panggil panggil". "pepanggil", "peragu", "péragu", "péragut", "Röhrenblume", "sepanggil", "setawar", "siphonante", "tubeflower", "umquongo", "umqwaqwann", "volkamera", "volkamier", "volkammerie", and "witches' tongues". Adam (1970) reports "dupérâ ki ginêel" and "fugni giẽn" for two unidentified African species. Burkill (1966) says that "tampang bĕsi", applied erroneously to *Vitex vestita* Wall., actually applies to a species of *Clerodendrum*. Narkiewicz (1981) asserts that in the so-called "language of flowers" *Clerodendrum* signifies "fortune sometimes favors the worthy".

Many diseases and pests are reported to attack *Clerodendrum* [cfr. Riddick, k955, Westcott, 1950, 1956, & 1971, Horst, 1979, Babu, 1977, Sydow, 1923, Beeli, 1920, Weiss & O'Brien, 1953, Seymour, 1929, Pirone, 1978, Burns & Rotherham, 1969, Hansford, 1941 & 1961, Hamid, 1966, Cummins, 1943, and Wiltshire, 1954 & 1957]. Among these are *Aecidium multidorum*, *Aspidiotus lataniae* Sign., *Asterinia entebbeensis* (Uganda), *Asterinia clerodendricola*, *Asterolecanium pustulans*

(Cockerell), *Balladynastrum clerodendri*, *Cercoseptoria clerodendri*, *Cercospora apii* f. *clerodendri* (a leaf-spot, Florida),*C. kashotoensis* (a leaf-spot), *Cerotelium dasdaloides* Cummins (Uganda), *Clania cameri* Hamps. (clerodendron case-worm, Pakistan [can be controlled by its parasite, *Brachycorhyphus nursei* Cam.], *Coccus hesperidium* (brown soft-scale), *Coniothyrium clerodendri*, *Cuscuta reflexa* Roxb. (a dodder, India), *Didymaria clerodendri*, *Dimerina citricola*, *Haplosporella clerodendri*, *Heterodera marioni* (Cornu) Goodey (a root-knot nematode), *Hypolycaena phorbus* (common tit butterfly, Australia), *Meliola clerodendri* Hansf., *M. clerodendricola* P. Henn., *M. durantae* var. *acutiseta* (hansf.) Hansf., Uganda), *M. sakawensis* P. Henn., *M. sakawensis* var. *acutiseta* Hansf. (Uganda), *M. sakawensis* var. *longispora* Beeli (Zaire), *Meloidogyne incognita* (a root-knot nematode, Maryland), *Orthezia insignis* Douglas, *Phyllosticta clerodendri* Sydow (a leaf-spot), *P. inermis* (a leaf-spot), *Physolospora clerodendri* Sydow, *Planococcus citri* (a mealybug), *Podosporium penicillium* var. *clerodendri*, *Pseudococcus adonidum* (Targ.), *P. citri* (Risso), *Pulvinaria psidii* Mask. (green shield-scale), *P. urbicola* (Cockerell), *Saissetia hemisphaerica* (Targ.), *S. oleae* (Bern.), *Septoria petrakiana* (a leaf-spot), *S. phlyctaenoides* Berk. & Curt. (a leaf-spot, South Carolina), and *Tetrachia singularis*. Takahashi (1932) reports that in Taiwan *Clerodendrum* serves as host to the whitefly, *Aleurotuberculatus uraianus* Takahashi, while Cohic (1968) reports it serving as host to another whitefly, *Tetraleurodes russellae* Cohic. Sobers & Martinez (1964, 1967) discuss the symptoms, transmission, and pathogenicity of *Cercospora apii* f. *clerodendri*.

Brown (1968) informs us that species of *Clerodendrum* are the "commonest host" of the longhorn beetle, *Dihamus cervinus* Hope, the larvae of which are popularly known as "teak cankerworm" in northern India, Bangladesh, and Burma. It hides in the crown of the host trees by day and feeds mainly at night, gnawing irregular patches in the bark and sometimes girdling twigs and branches; it occasionally devours also the buds, petioles, and tender shoots.

Westcott (1971) lists the Zonate Ring-spot Virus as attacking *Clerodendrum* in Florida.

Taxonomically it is worth noting that the genus *Clerodendrum* is placed in the *Labiatae* (*Lamiaceae*), section *Verbeneae*, by Reichenbach (1827, 1828, 1833), with *Volkmannia* Jacq. and *Agricolaea* Schrank as synonyms. He keeps *Ovieda* L. as a separate genus, with *Siphonanthus* L. as a synonym. He also retains *Volkameria* L. as a separate genus. *Clerodendrum* is also placed in the mint family by Dahlgren (1938) and by Novak (1961).

Ovieda was accepted as a valid genus by Linneus (1737, 1754) with *Valdia* as a synonym, *Siphonanthus* was accepted with *Siphonanthemum* as a synonym, and *Volkameria* was accepted with *Duglassia* as a synonym. This acceptance and synonymy were followed by Reichenbach (1778), Schreber (1791), and Haenke (1791). *Cleianthus* Lour, is retained as a valid genus by Barkley (1965).

The genus *Agricolaea* Schrank is classified in the *Labiatae* by Wittstein (1852), who claims that it was named in honor of C. A. Agricola (1772--1838), a physician at Regensburg, but Allen, in longhand notes on the margins of his personal copy of Wittstein's book, claims

that it commemorates a "Johann Agricola", a pseudonym used by Georg Pa0rle (1490--1555), born in März, Saxony, died at Chemmitz, who wrote under the name "Johannes Agricola" or "Ammonius". There was also another botanist with the same surname, Georg Andreas Agricola (1672--1738), born at Regensberg -- probably this was the man referred to by Wittstein as "C. A. Agricola".

Siphoboea Baill. was originally placed in the *Gesneriaceae*, but the type species, *S. commersonii*, is *Clerodendrum minahassae* Teijsm. & Binn., so the genus is obviously a synonym of *Clerodendrum* (unless *Siphonanthus* is again segregated as a separate genus because of its inordinately extended corolla-tubes, as is maintained by Linneus, Willdenow, Hiern, J. Britten, N. L. Britton, Nakai, Small, and others). *Kalaharia* Baill. is often included in *Clerodendrum*; its spines, however, while superficially reminding one of the spinose *Clerodendrum* species, are modified twigs and not merely petiole-bases.

Briquet (1895), in commenting on *Adelosa* Blume, says: "Diese mir völlig unbekannte Gattung wird von Baillon zu *Clerodendron* gezogen. Der Beschreibung nach scheint dieselbe doch durch den Bau der Frucht und des Samens ziemlich verschieden." The two genera are currently kept distinct.

Lindley (1870) says of *Clerodendrum*: "This genus is nearly related to *Volkameria* and *Aegiphila*, but is separated from the former by its fruit and from the latter by its pentamerous flowers." He adds: "The plants have slightly bitter sub-astringent properties, and on this account some of them are used in Indian medicine."

It is interesting to note how estimates of the number of taxa included in *Clerodendrum* have varied over the years: Clarke (1885), Durand (1888), Trimen (1895), Voss (1895), and Fyson (1915) all give "70" as their guess, Brown (1935) says "75", Lindley (1870) and Baker (1877) raised it to 80, Koorders & Valeton (1900) and Briquet raised it to 90. Baker (1900), Pearson (1901), Cooke (1905), Brandis (1906), Parker (1924), Rehder (1927), Marloth (1932), and Wisler (1943) estimated that 100 would be the probable number, Corner (1952) raised it to 120, P'ei (1932) to 160, León & Alain (1974) to "250--300", Chittenden & Synge (1956) to 300, Moldenke (1940), Sastri (1950), and Troncoso (1974) to 350, Hsiao (1975, 1978), Cronquist (1981), and the Corrells (1982) to 400, the Baileys (1976) to "over 450", and López-Palacios (1977) to "ca. 500".

Westman (1744) placed *Clerodendrum* in his group called *Plantae Baccatae* and *Volkameria* in his *Plantae Armatae*, a purely pre-linnean artificial classification. Linneus (1743) placed *Clerodendrum* and *Volkameria* in his *Didynamia Angiospermia* and *Siphonanthus* in his *Tetrandria Monogynia*.

Patulix Raf. was proposed by Rafinesque as a new name for *Torreya* Spreng. (1821), a name antedated by Rafinesque's *Torreya* of 1818 and 1819. The type species of *Egena* Raf. is *E. erminensis* Raf., now known as *Clerodendrum emirnense* Bojer.

Numerous errors and inaccuracies occur in the bibliography of *Clerodendrum*. Among these may be mentioned for the record the following: *Douglasia* Lindl. (1827) is sometimes cited as first published in "1904" and *Siphonanthus* Schreb. (1858) as first published in "1874". Jackson (1893, 1895) misdates *Egena* Raf. (1837) and *Rotheca* Raf. (1838)

as "1836". The Hortus Cliffortianus of Linneus (1738) is often cited as "1737" and as pp. "180", "189", or "480" instead of p. 489. The *Siphonanthemum* of Amman is usually erroneously credited to "Act. Akad. Petrop. 1736", but actually was not effectively published until 1741. The Kunze (1843) reference in the synonymy of *Clerodendrum* is mis-dated "1842" by Rehder. Soukup (1976) credits *Cornacchinia* to "Savia" (rather than Savi) and *Torreya* to "Spreg." (instead of Sprengel). *Tetrathyranthus* A. Gray is cited, as a genus, by Jackson (1893), Dalla Torre & Harms (1904), Bakhuizen (1921), and others to Proc. Amer. Acad. Sci. 6: 50 (1862), but the name was not proposed as a genus by Gray in that reference, but plainly as a subgeneric group. Dalla Torre & Harms (1904) erroneously cite *Torreya* Spreng. (1821) to page "221" instead of to pp. 121--122. Baillon's work (1891) bears the erroneous date "1892" on its titlepage. Clarke (1885) is often cited as page "580", but the genus is not mentioned on that page.

Maruang is cited by Adanson (1763) to Rumpf, Herb. Amboin. 4: pl. 49, but it is given there only as a vernacular name among others. *Pinnakola* Herm. (1763) is sometimes erroneously cited to page "200" of Adanson's work and "*Clerodendron* (Linn.) R. Br." to page "226" of Spach's work (1840). *Clerodendron* Adans. is cited by Airy Shaw (1966) to Adans., Fam. Pl. 2: 199 & 540 (1763), but the name is there plainly accredited by Adanson to "Burm." Burman (1737) on page [241] of his work, in the index, incorrectly gives the plate number illustrating this genus as "25" instead of 29. Palisot de Beauvois' (1806 & 1810) references are sometimes cited as published in "1800" and "1806" respectively. The Tiwari & Garg (1961) reference in the bibliography is sometimes mis-cited to page "177" instead of 77--78.

Ovieda L. is sometimes erroneously cited to L., Sp. Pl., ed. 1, page "188" and *Clerodendrum* L. to page "109". In Chamisso's (1832) work page 105 is erroneously designated as "150" through a printing error. The Oliver (1887) plate is sometimes mis-cited as plate "1550" instead of 1559. Post & Kuntze (1903) cite the Linneus 1738 reference as "1737", the titlepage date, but the work was not effectively published until 1738; they also mis-cite the page reference as "480" instead of 489. Sweet (1826) refers to Browne's (1756) plate as plate "20" instead of 30. The titlepage of Engler's Bot. Jahrb., vol. 29, containing Diels' work, is dated "1901", but pages 321--576 were actually published on December 4, 1900. Siebold & Zuccarini's 1846 work is sometimes mis-dated as "4 (3)" instead of 3 (4). The page reference in Walpers' Repert. Bot. Syst., volume 4, is sometimes mis-cited as "173" instead of 73. The reference in Meisner's Pl. Vasc. Gen., volume 1, is sometimes given as page "637" instead of 291 and the work is mis-dated as published in 1838 -- actually pages 257--312 were not effectively published until 1840. The *Clerodendrum* references in Loudon's Hort. Brit., ed. 3 (1839) are sometimes cited as "549--550" and "623" instead of 247, 529, & 622. Similarly, the page reference of Rafinesque's Journ. Phys. (1819) work is sometimes mis-cited as "79" or "97" instead of 105, and the page in Lamarck's Encycl. Bot. Meth., volume 8, is sometimes mis-cited as "69" instead of 691.

DeWildeman's 1913 work is dated "1912" on the title-page, but was

not actually issued until 1913; similarly, Gürke's 1893 work is often mis-dated by the volume date of "1894". Dalzell & Galson (1861) and other authors mis-cite the Patrick Browne (1756) illustration as "t. 20" instead of 30. Rafinesque's genus *Rotheca* (1838) is mistakenly cited as published on page "65", instead of 69, by Rehder (1949).

It is worth noting here also that Edwards, Bot. Reg. pl. 1037 is sometimes cited as representing a *Clerodendrum*, but actually it depicts a species of *Hellenia* in the *Zingiberaceae*, while Curtis, Bot. Mag. pl. 4259, also sometimes cited as a *Clerodendrum* is actually a picture of a *Clematis* species in the *Ranunculaceae*. The plant depicted in Ann. Rep. Smithson. Inst. 1896: pl. 18 (1898) is certainly not anything verbenaceous.

Pfeiffer (1874) refers to Burman's Flora Indica as though it were authored by the senior Burman (Johannes, 1707--1779), but is was actually written by the younger Nicolaas Laurens (1733--1793), usually referred to as "Burm. f."

The title-page date of Baillon's Hist. Pl. is "1891", but the first 112 pages of volume 10 were actually issued and thus available for consultation in November or December of 1888; volume 11 is cited by López-Palacios (1977) as "1892", but actually pages 1--304 were issued in 1891. Similarly, the Sprengel (1824) reference is often inaccurately cited as "1825", the title-page date, but the work actually appeared already late in 1824. The Nees (1825) reference is sometimes incorrectly accredited to Blume.

The Lam (1924) reference in the *Clerodendrum* bibliography is sometimes cited as "1925", but, again, this is merely the title-page date; the page that concerns us was issued in 1924. The Endlicher (1838) reference is often cited as "1836--1856" or as "1839", but the pages involved with *Clerodendrum* actually appeared in 1838. Similarly, his 1858 reference is cited by Pfeiffer (1873) as published in "1857", but pages 705--960 of volume 2, the volume that concerns us here, were not actually issued until 1858. The Angely (1971) reference is often cited as published in "1970", the title-page date, but was delayed in publication until 1971.

The genus *Agricola* Schrank is sometimes erroneously cited to "Meisn., Gen. Pl." instead of to Endl., Gen. Pl. (1838).

In Beckett's work (1976) the illustration of the "glory pea" is erroneously labeled as a *Clerodendrum* through a reversal of the legends by the typesetter. Backer's (1917) work is sometime incorrectly cited as in volume "4 (8)" instead of 8 (4). Jacquin's (1798) work is sometimes erroneously cited as published in "1789". Haines' (1922) contribution is often cited as "6: 720 (1924)", but pages 419--754, including the pages that refer to *Clerodendrum*, appear in volume 4 and this was published in 1922. In the Index Kewensis and elsewhere the Vatke (1882) reference is cited as "1880--1882", but pages 253 to the end of the volume definitely comprise the portion issued in 1882.

The Schnitzlein (1856) reference is also usually cited by the running title-page date of "1843--1870", but the page that concerns *Clerodendrum* was definitely issued in 1856. Pfeiffer (1874), for some reason as yet unknown to me, cites the Miquel 1858 work as "1857" and the Willdenow (1802) one as "1800".

The genus *Cornacchinia* Endl. is attributed by Taylor (1966) to

"Endl., Nov. Stirp. 18. 1839", but, actually, it was there published as "*Cornachina*" as Taylor himself admits. The two Walpers references (1845, 1847) are most often cited by the title-page date of "1842--1848". The Wittstein work (1852) is often referred to as published in 1856 and the Boissier (1879) work as "1875" -- indeed, pages 1--280 were issued in 1875, but pages 281--1276, including the pages that concern us, were not issued until 1879. The Itô (1928) contribution, for some reason not yet known to me, is sometimes cited as "1927". The Andersson 1859 work bears the date of "1857", but a paper published in 1859 is cited in it on page 80!

The index in Vinha & al. (1983) indicates that *Clerodendrum* is listed on page "124"; actually it is on page 126. Bocquillon (1863) mis-cites the Robert Brown (1812) work as "ed. 1", while it actually is the 2nd amplified edition; he also mis-cites the J. J. Reichard (1778) work as authored by "Rich." [L. C. Richard].

The fruits of *Clerodendrum* are very often described as being "berries" from Westman in 1744 to authors in the present day literature on the genus! They are always and quite obviously drupes.

Numerous authors have reported unidentified species of *Clerodendrum* on the basis of collections which they (or the botanists to whom they submitted them for identification) were not able to assign names. Some of these, arranged in more or less chronological fashion, are the following.

The "*Clerodendron* sp." cited by Hooker filius in Trans. Linn. Soc. Lond. 20: 261 (1847), by Andersson in Vet. Akad. Handl. Stockh. 1853: 201 (1854) and Galap. Veg. 82 (1859), and by Robinson in Proc. Amer. Acad. Sci. 38: 195 (1902) is most probably *Clerodendrum molle* H.B.K.

Plates 445 & 448, fig. 4, in Griffith's 1854 opus illustrate only the floral parts of two alleged species unidentified by him. Vidal y Soler (1885) lists *Cuming 1423*, *1475*, *1573*, *1644*, *1688*, & *1900* as unidentified species of *Clerodendrum* from the Philippines. Koorders (1898) lists unidentified species of the genus in Indonesia with the local vernacular names of "bale-tango", "bonoewan-toengow", "kembang-boegang", "sesewanoewa". and "watana".

Pobéguin (1906) lists five alleged species, undetermined except to genus, from Guinea and represented by *Kindia 1281*, *Kouroussa 428*, *Sankaran 834*, *Sineya 803*, and *Timbo 154*. Pulle (1911) cites *Branderhorst 74* as an unidentified species from New Guinea. *Chevalier 14370* is listed as an unidentified *Clerodendrum* from Saint Tomé by Chevalier (1914) and by Exell (1944). In his 1913 work Chevalier lists *Chevalier 6521*, unidentified, from the Central African Republic.

Hansford (1961) lists many unidentified *Clerodendrum* specimens serving as host for fungi studied by him: *Schweinfurth 2753* from tropical Africa; *Dümmer 3014*, *Hansford 1757*, *1792*, *1844*, *1920*, *1959*, *2005*, *2015*, *2016*, *2130*, *2255*, *2354*, *2525*, *2596*, *3034*, *3314*, & *3335*, *Maitland 229* & *271*, and *Small 461* from Uganda; *Robinson 2466* from Celebes, *Burkill 4142* from Penang, *Hendrickx s.n.* and *Vanderyst 3188*, *21809*, *21813*, *23723*, & *33170* from Zaire, and *Philip. Bur. Sci. 36470* from the Philippines, all infested by *Meliola clerodendricola* P. Henn.

Cufodontis (1962) cites two unidentified collections from Ethiopia: *Glover & Gilliland s.n.* and *Hemming 1503*, known locally, respectively, as "dumot" and "dumod" or "dumot". He notes that "Nominibus monen-

tibus ambo specimina cum *C. microphyllo* et *C. Robecchii* comparare proderit."

Kerharo & Bocquet (1950) cite *Gagnoa 892* as an unidentified *Clerodendrum* from the Ivory Coast, called "dibi-titi" and "kpé-titi" there; he notes that "Le produit obtenu en pilant des tiges feuillées et des graines de maniguette est utilisé, en frictions, pour soigner les dermatoses."

Van Royen (1960) cites, unidentified, his *no. 5517* from New Guinea. Schnell & Grout de Beaufort (1966) discuss the myrmecophily exhibited by *Hédin 69*, unidentified, from the Cameroons. Meyer (1966) describes the petaloidy exhibited by the stamens of an unidentified species -- perhaps nothing more than the common *Clerodendrum philippinum* f. *multiplex* (Sweet) Mold. Hyland (1968) cites as an unidentified *Clerodendrum* a *no. 1212, U. S. Dept. Agr. Pl. Inventory 285370* from Nepal. Vergiat (1970) reports two unidentified *Clerodendrum* species in tropical Africa locally called "furu", "ihina gbandila", and "ungale".

Whitmore (1966) cites his *nos. 1554* & *3453* from the Solomon Islands, representing an unidentified *Clerodendrum* which is a "common small bushy tree mainly in secondary lowland forests" and there known as "kakafai", "kakafaimeo", "kakfaikwau", "kinili'o", and "teterao". Razafind (1971) lists what he supposes to be two unidentified species of *Clerodendrum* from Madagascar, known there by the vernacular names of "aletry" and "varitikia", respectively, and used medicinally there as a blennorhagic in cases of back ailments.

Sometimes Asiatic members of the genus *Clerodendrum* are misidentified as species of *Gmelina*. On the other hand, some horticultural specimens, labeled as unidentified *Clerodendrum* species, actually are specimens of the composite genus *Montanoa* Cerv. Among the many other herbarium collections which I have examined over the past 50 years, labeled as unidentified *Clerodendrum* species, may be mentioned the following: *Albers 59099* is a mint, *Bayliss BS.1365* & *7469* are in the *Acanthaceae*, *Bernardi 11731* is probably not verbenaceous, *O. M. Clark 7100* is not verbenaceous, *Comanor 722* is *Premna tomentosa* Willd., *Demaree 28323* is a mint, *Dewol & Talib SAN.80371* is *Premna foetida* Reinw., *Frizzi s.n.* is not verbenaceous, *Geesink & Phengkhlai 6179* is not verbenaceous, A. *Gentry 9395* is *Aegiphila elata* Sw., *Hosseus 5* is *Glossocarya mollis* Wall., *Hugh 105* is not verbenaceous, *Kassas s.n.* [10.1.1956] is *Premna resinosa* f. *grossedentata* Mold. (type), *Kassim s.n.* [29/8/64] is *Premna odorata* Blume, R. M. *King 2183* is *Trichostema* sp., *Kinted SAN.19065* is *Premna foetida* Reinw., *Koelz 18915* is not verbenaceous *Kostermans 24327* & *28141* are *Glossocarya scandens* (L. f.) Trimen, *Kundu & Balakrishnan 187* is *Glossocarya scandens* (L. f.) Trimen, *Leach & Cawnell 13854* is not verbenaceous, *Leopold SAN.82440* is *Premna odorata* f. *crenulata* Koord. & Val., *Leopold & Kodoh SAN.81399* is not verbenaceous, *Maxwell, Hopper, & Fernand. 979* is something in either the *Oleaceae* or *Apocynaceae*, *Meijer SAN.23423* is not verbenaceous, *Native collector 2055* is *Dichroa febrifuga* Lour., *Oldham 679* is *Premna microphylla* Turcz., *Orcutt 3057* is *Aegiphila deppeana* Steud., *Peter 50665* [S.12] is not verbenaceous, *Reekmans 2109* is not verbenaceous, *Rusby 18* is not verbenaceous, *Sadau SAN.53858* is *Jasminum* sp., *Schlieben 5730* is *Premna velutina* Gürke, *Sinaanggol SAN.57292* is *Premna oblongifolia* var. *angustata* Mold. (type), *J. D.*

Smith 2554 is *Hiraea kunthiana* A. L. Juss., *Streimann & Kairo LAE. 1567* is *Glossocarya hemiderma* (F. Muell.) Benth., *Tarodop SAN.83610* is *Sphenodesme triflora* Wight, *Vaupel 363* is *Faradaya amicorum* (Seem.) Seem., *O. E. White 2368* is in the *Rubiaceae*, *E. H. Wilson 2424* is *Caryopteris chosenensis* Mold., *Worthington 5297* is *Glossocarya scandens* (L. f.) Trimen, and *Zenker 1465* is not verbenaceous.

A list of excluded taxa, including some from homonymous genera:

Bellevalia Delile ex Endl., Gen. Pl. 231. 1837 = *Althenia* Petit, *Zanichelliaceae*

Bellevalia Lepyr., Journ. Phys. Chim. Hist. Nat. 67: 425. 1808 = *Hyacinthus* L., *Liliaceae*

Bellevalia Montrouz. ex Beauvis., Gen. Montrouz. 80. 1901 = *Agatea* A. Gray, *Violaceae*

Bellevalia "Montrouz. apud Beauvis." ex Airy Shaw in J. C. Willis, Dict. Flow. Pl., ed. 8, 130 in syn. 1973 = *Agatea* A. Gray, *Violaceae*

Bellevalia Roem. & Schult in L., Syst. Veg., ed. 16, 5: xxii. 1819 = *Richeria* Vahl, *Euphorbiaceae*

Clerodendron "Hort. ex DC." apud Pfeiffer, Nom. Bot. 1 (1): 785 in syn. 1873 = *Verbesina* L., *Carduaceae*

Clerodendron Hort. ex A. P. DC., Prodr. 5: 613 in syn. 1836 = *Verbesina atriplicifolia* A. L. Juss., *Carduaceae*

Clerodendron abbreviata Miq. ex H. J. Lam, Verbenac. MaLAY. Arch. 364 sphalm. 1919 = *Premna obtusifolia* R. Br.

Clerodendron amicorum Seem., Bonplandia 10: [249]--250. 1862 = *Faradaya amicorum* (Seem.) Seem.

Clerodendron (*Tetrathyranthus*) *amicorum* A. Gray, Proc. Amer. Acad. Sci. 6: 50. 1862 = *Faradaya amicorum* (Seem.) Seem.

Clerodendron arthurgordoni Horne, Year Fiji 259 nom. nud. 1881 = *Faradaya ovalifolia* (A. Gray) Seem.

Clerodendron arthur-gordoni Horne ex Mold., Fifth Summ. 1: 439 in syn. = *Faradaya ovalifolia* (A. Gray) Seem.

Clerodendron bolivianum Britton ex Rusby, Bull. Torrey Bot. Club 27: 82. 1900 = *Aegiphila multiflora* Ruiz & Pav.

Clerodendron bolivianum Rusby ex Mold., Prelim. Alph. List Inv. Names 18 in syn. 1940 = *Aegiphila multiflora* Ruiz & Pav.

Clerodendron canum D. Don ex Walp., Repert. Bot. Syst. 4: 115 in syn. 1845 = *Leucosceptrum canum* J. E. Sm., *Lamiaceae*

Clerodendron capitatum Klotzsch ex Mold., Prelim. Alph. List Inv. Names 10 in syn. 1940 = *Aegiphila macrantha* Ducke

Clerodendron demeusei DeWild. ex Mold., Résumé 262 in syn. 1959 = *Buddleia* L., *Buddleiaceae*

Clerodendron divaricatum Sieb. & Zucc., Abhandl. Akad. Wiss. Muench. Math.-Phys. 4 (3) [Fl. Jap. Fam. Nat. 2]: 154. 1846 = *Caryopteris chosenensis* Mold.

Clerodendron epiphyticum Standl., Field Mus. Publ. Bot. 22: 168--169. 1940 = *Gibsoniothamnus epiphyticum* (Standl.) L. O. Wms., *Scrophulariaceae*

Clerodendron esquirolii Levl. [no. 943], Feddes Repert. Spec. Nov. 11: 298. 1912 = *Tacca chantrieri* André, *Taccaceae*

Clerodendron foetidum D. Don, Prodr. Fl. Nepal. 103. 1825 = *Caryopteris foetida* (D. Don) Thellung

Clerodendron formosum Beckett, Illust. Encycl. Indoor Pl. 187 sphalm. 1976 = *Clianthus formosus* (G. Don) Ford & Vickery, *Fabaceae*
Clerodendron gordoni J. G. Baker, Journ. Linn. Soc. Lond. Bot. 20: 370. 1883 = *Faradaya ovalifolia* (A. Gray) Seem.
Clerodendron granum Jameson ex Mold., Alph. List Inv. Names Suppl. 1: 6 in syn. 1947 = *Caryopteris foetida* (D. Don) Thellung
Clerodendron grata Kurz ex Collett & Hemsl., Journ. Linn. Soc. Lond. Bot. 28: 111 in syn. 1890 = *Caryopteris paniculata* C. B. Clarke
Clerodendron gratum Benth. ex Mold., Alph. List Inv. Names Suppl. 1: 6 in syn. 1947 = *Caryopteris foetida* (D. Don) Thellung
Clerodendron gratum Kurz ex C. B. Clarke in Hook. f., Fl. Brit. India 4: 597 in syn. 1885 = *Caryopteris paniculata* C. B. Clarke
Clerodendron gratum Wall., Numer. List 50 ["49"], no. 1811 hyponym. 1829 = *Caryopteris foetida* (D. Don) Thellung
Clerodendron gulmasta Hamilt. ex Mold., Phytol. Mem. 2: 386 in syn. 1980 = *Caryopteris odorata* (Hamilt.) B. L. Robinson
Clerodendron helianthemifolium Wall. ex Steud., Nom. Bot. Phan., ed. 2, 1: 383. 1840 = *Caryopteris odorata* (Hamilt.) B. L. Robinson
Clerodendron hemiderma F. Muell. in Benth. & F. Muell., Fl. Austral. 5: 61. 1870 = *Glossocarya hemiderma* (F. Muell.) Benth.
Clerodendron leucosceptrum D. Don, Prod. Fl. Nepal. 103. 1825 = *Leucosceptrum canum* J. E. Sm., *Lamiaceae*
Clerodendron (*Hemiderma*) *linnaei* F. Muell. ex Benth. & F. Muell., Fl. Austral. 5: 61 in syn. 1870 = *Glossocarya hemiderma* (F. Muell.) Benth.
Clerodendron linnaei F. Muell. ex Mold., Résumé 266 in syn. 1959 = *Glossocarya hemiderma* (F. Muell.) Benth.
Clerodendron linnaei Thwaites in Thwaites & Hook. f., Enum. Pl. Ceyl. 243. 1861 = *Glossocarya scandens* (L. f.) Trimen
Clerodendron lobbiana Clarke apud Ridl., Journ. Straits Br. Roy. Asiat. Soc. 50: 125 in syn. 1908 = *Hoseanthus lobbii* (C. B. Clarke) Merr.
Clerodendron lobbianum C. B. Clarke ex Mold., Alph. List Inv. Names 18 in syn. 1942 = *Hoseanthus lobbii* (C. B. Clarke) Merr.
Clerodendron lobbianum [C. B. Clarke] ex Prain, Ind. Kew. Suppl. 4, imp. 1, 125 in syn. 1911 = *Hoseanthus lobbii* (C. B. Clarke) Merr.
Clerodendron lobbianum Ridl. ex H. J. Lam in Lam & Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 95 in syn. 1921 = *Hoseanthus lobbii* (C. B. Clarke) Merr.
Clerodendron lobbii C. B. Clarke in Hook. f., Fl. Brit. India 4: 590. 1885 = *Hoseanthus lobbii* (C. B. Clarke) Merr.
Clerodendron malmesianum Mold., Suppl. List Inv. Names 2 in syn. 1941 = *Tetraclea coulteri* f. *angustifolia* (Woot. & Standl.) Mold.
Clerodendron matudae Standl., Field Mus. Publ. Bot. 17: 206--207. 1937 = *Aegiphila costaricensis* Mold.
Clerodendron matudai Standl. apud Matuda, Amer. Midl. Nat. 44: 575. 1950 = *Aegiphila costaricensis* Mold.
Clerodendron mimicum Standl. & Steyerm., Field Mus. Publ. Bot. 23: 227. 1947 = *Gibsoniothamnus mimicum* (Standl. & Steyerm.) L. O. Wms., *Scrophulariaceae*
Clerodendron moldenkeanum Standl., Field Mus. Publ. Bot. 22: 99. 1940 = *Gibsoniothamnus moldenkeanus* (Standl.) L. O. Wms., *Scrophular-*

iaceae

Clerodendron moupinense Franch., Nouv. Arch. Mus. Paris, ser. 2, 10: 68. 1888 = *Microtoena moupinensis* (Franch.) Franch., *Lamiaceae*

Clerodendron odoratum Buch. ex Voigt, Hort. Suburb. Calc. 466. 1845 = *Caryopteris odorata* (Hamilt.) B. L. Robinson

Clerodendron odoratum Buch.-Ham. ex D. Don, Prodr. Fl. Nepal. 102. 1825 = *Caryopteris odorata* (Hamilt.) B. L. Robinson

Clerodendron odoratum D. Don ex Schau. in A. DC., Prodr. 11: 625 in syn. 1847 = *Caryopteris odorata* (Hamilt.) B. L. Robinson

Clerodendron odoratum Ham. ex Mold., Phytologia 54: 242 in syn. 1983 = *Caryopteris odorata* (Hamilt.) B. L. Robinson

Clerodendron odoratum (Hamilton) D. Don ex B. L. Robinson, Proc. Amer. Acad. Sci. 51: 531 in syn. 1916 = *Caryopteris odorata* (Hamilt.) B. L. Robinson

Clerodendron odoratum "[Hamilton] D. Don" ex Fedde & Schust., Justs Bot. Jahresber. 60 (2): 571 in syn. 1941 = *Caryopteris odorata* (Hamilt.) B. L. Robinson

Clerodendron ovalifolia A. Gray apud Parham, Fiji Nat. Pl. 124. 1943 = *Faradaya ovalifolia* (A. Gray) Seem.

Clerodendron ovalifolium A. Gray apud Drake del Castillo, Illust. Fl. Ins. Mar. Pacif. 261. 1892 = *Faradaya ovalifolia* (A. Gray) Seem.

Clerodendron (*Tetrathyranthus*) *ovalifolium* A. Gray, Proc. Amer. Acad. Sci. 6: 50. 1862 = *Faradaya ovalifolia* (A. Gray) Seem.

Clerodendron peekelii Markgraf, Notizbl. Bot. Gart. Berl. 10: 121. 1927 = *Faradaya peekelii* (Markgraf) Mold.

Clerodendron pentandrum (Vent.) Bueck ex Mold., Prelim. Alph. List Inv. Names 21 in syn. 1940 = *Citharexylum pentandrum* Vent.

Clerodendron phlomoides Hort. Ital. ex Walp., Repert. Bot. Syst. 4: 115 in syn. 1845 = *Montanoa arborescens* C. Koch, *Carduaceae*

Clerodendron pithecobium Standl. & Steyerm., Field Mus. Publ. Bot. 22: 373--374. 1940 = *Gibsoniothamnus cornutus* (Donn. Sm.) A. Gentry, *Scrophulariaceae*

Clerodendron powellii Benth. & Hook. f. ex Drake del Castillo, Illust. Fl. Ins. Mar. Pacif. 261. 1892 = *Faradaya powellii* Seem.

Clerodendron powellii (Seem.) Benth. & Hook. ex Mold., Alph. List Inv. Names 19 in syn. 1942 = *Faradaya powellii* Seem.

Clerodendron scandens (L. f.) Druce ex Mold., Alph. List Inv. Names 20 in syn. 1942 = *Glossocarya scandens* (L. f.) Trimen

Clerodendron sericeum Wall., Numer. List "49" [=50], no. 1814, nom. nud. 1829 = *Hiptage sericea* (Wall.) Hook. f., *Malpighiaceae*

Clerodendron sieboldii Kuntze, Rev. Gen. Pl. 2: 505. 1891 = *Caryopteris chosenensis* Mold.

Clerodendron spicatum Thunb., Fl. Jav. 22. 1825 = *Orthosiphon spiralis* Lour., *Lamiaceae*

Clerodendron spinescens Gürke in Engl., Pflanzenw. Ost-Afr. C: 340 in syn. 1895 = *Kalaharia uncinata* (Schinz) Mold.

Clerodendron spinescens (Oliv.) Gürke, Engl. Bot. Jahrb. 18: 180--181. 1893 = *Kalaharia uncinata* (Schinz) Mold.

Clerodendron uncinatum Schinz, Verhandl. Bot. Ver. Brand. 31: 206--207. 1890 = *Kalaharia uncinata* (Schinz) Mold.

Clerodendron uncinatum var. *parviflora* (Schinz) Gürke, Engl. Bot. Jahrb. 18: 181. 1893 = *Kalaharia uncinata* var. *parviflora* (Schinz)

Mold.

Clerodendron urcinatum Schinz ex Mold., Fifth Summ. 1: 459 in syn. 1971 = *Kalaharia uncinata* (Schinz) Mold.

Clerodendron verrucosum Splitgb. ex Mold., Prelim. Alph. List Inv. Names 22 in syn. 1940 = *Trichanthera gigantea* (Humb. & Bonpl.) Nees, Acanthaceae

Clerodendron no. 33 Hook. f. & Thoms. ex C. B. Clarke in Hook. f., Fl. Brit. India 4: 580 in syn. 1885 = *Premna amplectens* Wall.

Clerodendrum bolivianum Britton apud J. F. Macbr., Field Mus. Publ. Bot. 13 (5): 714 in syn. 1960 = *Aegiphila multiflora* Ruiz & Pav.

Clerodendrum brasiliense Spreng. ex Mold., Prelim. Alph. List Inv. Names 22 in syn. 1940 -- not verbenaceous

Clerodendrum capitatum Klotzsch ex Mold., Phytologia 1: 234 in syn. 1937 = *Aegiphila macrantha* Ducke

Clerodendrum commune Edgeworth, Pollen, ed. 1. 26. pl. 1, 12, & 15, nom. nud. 1977 = identity undetermined

Clerodendrum discolor Turcz. ex Mold., Fifth Summ. 1: 461 in syn. 1971 = *Citharexylum discolor* Turcz.

Clerodendrum epiphyticum Standl. ex Mold., Known Geogr. Distrib. Verbenac., ed. 1, 22, 23, & 89. 1942 = *Gibsoniothamnus epiphyticus* (Standl.) L. O. Wms., Scrophulariaceae

Clerodendrum foetidum D. Don ex Mold., Prelim. Alph. List Inv. Names 23 in syn. 1940 = *Caryopteris foetida* (D. Don) Thellung

Clerodendrum gordoni J. G. Baker ex Mold., Known Geogr. Distrib. Verbenac., ed. 1, 68 & 90. 1942 = *Faradaya ovalifolia* (A. Gray) Seem.

Clerodendrum granum Jameson, Rep. Bot. Gov. Northw. Prov. 164. 1855; J. F. Wats., Ind. Nat. Scient. Names 523. 1868 = *Caryopteris foetida* (D. Don) Thellung

Clerodendrum gratum Kurz ex Mold., Suppl. List Inv. Names 2 in syn. 1941 = *Caryopteris paniculata* C. B. Clarke

Clerodendrum gulmasta Hamilt. ex Wall., Numer. List 87, no. 1812G. 1831 = *Caryopteris odorata* (Hamilt.) B. L. Robinson

Clerodendrum linnaei Thwaites ex Mold., Alph. List Inv. Names Suppl. 1: 7 in syn. 1947 = *Glossocarya scandens* (L. f.) Trimen

Clerodendrum loniceroides Mold., Lloydia 13: 208. 1950 = *Buddleia loniceroides* (Mold.) Mold., Buddleiaceae

Clerodendrum mimicum Standl. & Steyerm. apud E. J. Salisb., Ind. Kew. Suppl. 11: 56. 1953 = *Gibsoniothamnus mimicus* (Standl. & Steyerm.) L. O. Wms., Scrophulariaceae

Clerodendrum moldenkeanum Standl. ex Mold., Suppl. List Inv. Names 2. 1941 = *Gibsoniothamnus moldenkeanus* (Standl.) L. O. Wms., Scrophulariaceae

Clerodendrum moupinense Franch. ex Mold., Alph. List Inv. Names 21 in syn. 1942 = *Microtoena moupinensis* (Franch.) Franch., Lamiaceae

Clerodendrum nelmesianum Mold., Geogr. Distrib. Avicenn. 14 nom. nud. 1939 = *Tetraclea coulteri* f. *angustifolia* (Woot. & Standl.) Mold.

Clerodendrum odoratum Hamilt. ex Wall., Numer. List 87, no. 1812F. 1831 = *Caryopteris odorata* (Hamilt.) B. L. Robinson

Clerodendrum ovalifolium (A. Juss.) Bakh. ex Beard, Descrip. Cat. W. Austral. Pl., ed. 1, 91. 1965 = *Faradaya ovalifolia* (A. Gray) Seem.

Clerodendrum pithecobium Standl. & Steyerm. apud Mold., Suppl. List Inv. Names 2. 1941 = *Gibsoniothamnus cornutus* (Donn. Sm.) A. Gentry, *Scrophulariaceae*

Clerodendrum spicatum Edgeworth, Pollen, ed. 1, 26 & 76, pl. 1, 12. 1877 = *Orthosiphon spiralis* Lour., *Lamiaceae*

Clerodendrum spinescens (Oliv.) Gürke apud B. Thomas, Engl. Bot. Jahrb. 18: 89. 1936 = *Kalaharia uncinata* (Schinz) Mold.

Clerodendrum standleyi Mold., Known Geogr. Distrib. Verbenac., ed. 1, 76. 1942 = *Tryblicalyx pyramidatus* Lindau, *Acanthaceae*

Clerodendrum ternatum Hoffmgg. ex Mold., Prelim. Alph. List Inv. Names 23 in syn. 1940 = *Vitex trifiora* Vahl

Clerodendrum uncinatum Schinz apud G. Taylor, Ind. Kew. Suppl. 12: 76. 1959 = *Kalaharia uncinata* (Schinz) Mold.

Clerodendrum uncinatum Schinz & Mold. ex Mold., Fifth Summ. 1: 466 in syn. 1971 = *Kalaharia uncinata* (Schinz) Mold.

Clerodendrum verrucosum Splitgb. ex Pulle, Enum. Pl. Surin. 404. 1906 = *Trichanthera gigantea* (Humb. & Bonpl.) Nees, *Acanthaceae*

Cornacchinia Endl. ex G. Taylor, Ind. Kew. Suppl. 13: 35 in syn. 1966 = *Baeolepis* Decne., *Periplocaceae*

Cryptanthus Nutt. ex Moq. in A. DC., Prodr. 13 (2): 54. 1849 = *Aphanisma* Nutt., *Chenopodiaceae*

Cryptanthus Otto & Dietr., Allg. Gartenzeit. 4: 298. 1836 -- in the *Bromeliaceae*

Cryptanthus acaulis (Lindl.) Beer, Bromel. 75. 1857 -- in the *Bromeliaceae*

Cryptanthus andicola Moritz ex Baker, Handb. Bromel. 4 in syn. 1889 = -- in the *Bromeliaceae*

Cryptanthus bahiensis L. B. Sm., Arquiv. Bot. Est. S. Paulo, ser. 2 f. maj., 1: 106, pl. 104. 1943 -- in the *Bromeliaceae*

Cryptanthus beuckeri E. Morr., Belg. Hortic. 30: 241. 1880 -- in the *Bromeliaceae*

Cryptanthus bivittatus (Hook.) Regel, Ind. Sem. Hort. Petrop. 1864: 15. 1864 -- in the *Bromeliaceae*

Cryptanthus bromelioides Otto & Dietr., Allg. Gartenzeit. 4: 298. 1836 -- in the *Bromeliaceae*

Cryptanthus clavatus Hort. ex Baker, Handb. Bromel. 68 in syn. 1889 = *Canistrum aurantiacum* E. Morr., *Bromeliaceae*

Cryptanthus discolor Otto & Dietr., Allg. Gartenzeit. 4: 299. 1836 -- in the *Bromeliaceae*

Cryptanthus diversifolius Beer, Bromel. 76. 1857 -- in the *Bromeliaceae*

Cryptanthus duartei L. B. Sm., Smithson. Misc. Coll. 126: 23, fig. 67. 1955 -- in the *Bromeliaceae*

Cryptanthus fosterianus L. B. Sm., Bromel. Soc. Bull. 2: 63. 1952 -- in the *Bromeliaceae*

Cryptanthus glaziovii Mez in Mart., Fl. Bras. 3 (3): 202. 1891 -- in the *Bromeliaceae*

Cryptanthus glaziovii sensu L. B. Sm. ex L. B. Sm., Arquiv. Bot. Est. S. Paulo, ser. 2 f. maj., 1: 106 in syn. 1943

Cryptanthus incrassatus L. B. Sm., Arquiv. But. Est. S. Paulo, ser. 2 f. maj., 2: 119, pl. 49. 1950 -- in the *Bromeliaceae*

Cryptanthus lacerdae Antoine, Hort. Gentil. Pl. Cult. Serr. Jard. Bot. Brux. 66. 1907 -- in the *Bromeliaceae*
Cryptanthus marginatus L. B. Sm., Smithson. Misc. Coll. 126: 24, fig. 70. 1955-- in the *Bromeliaceae*
Cryptanthus maritimus L. B. Sm., Arquiv. Bot. Est. S. Paulo, ser. 2 f. maj., 1: 106, pl. 105. 1943 -- in the *Bromeliaceae*
Cryptanthus minarum L. B. Sm., Smithson. Misc. Coll. 126: 24, fig.69. 1955 -- in the *Bromeliaceae*
Cryptanthus morreniana Regel, Gartenfl. 37: 157. 1888 = *Bromelia morreniana* (Regel) Mez, *Bromeliaceae*
Cryptanthus osiris Weber, Feddes Repert. 93: 337--339. 1982-- in the *Bromeliaceae*
Cryptanthus pickelii L. B. Sm., Smithson. Misc. Coll. 126: 25, fig. 72. 1955 -- in the *Bromeliaceae*
Cryptanthus praetextus E. Morr. ex Baker, Handb. Bromel. 16. 1889 -- in the *Bromeliaceae*
Cryptanthus pseudoscaposus L. B. Sm., Smithson. Misc. Coll. 126: 25, fig. 68. 1955 -- in the *Bromeliaceae*
Cryptanthus schwackeanus Mez in Mart., Fl. Bras. 3 (3): 203. 1891 -- in the *Bromeliaceae*
Cryptanthus sinuosus L. B. Sm., Smithson. Misc. Coll. 126: 26. 1955 -- in the *Bromeliaceae*
Cryptanthus undulatus Otto & Dietr., Allg. Gartenzeit. 4: 299. 1836 -- in the *Bromeliaceae*
Cryptanthus zonatus (Visiani) Beer, Bromel. 76. 1857 -- in the *Bromeliaceae*
Cyclonema tettensis Klotzsch in Peters, Naturwiss. Reise Mossamb. 6 [Bot.] 1: 261. 1861 = *Holmskioldia tettensis* (Klotzsch) Vatke
Cyrtostemma Mert. & Koch ex Spach, Hist. Vég. Phan. 10: 321. 1841 = *Scabiosa* L., *Dipsacaceae*
Cyrtostemma (Mert. & Koch) Spach apud Airy Shaw in J. C. Willis, Dict. Flow. Pl., ed. 8, 333 in syn. 1973 = *Scabiosa* L., *Dipsacaceae*
Cyrtostemma Spach, Hist. Vég. Phan. 10: 321. 1841 = *Scabiosa* L., *Dipsacaceae*
Cyrtostemma atropurpurea Mert. & Koch ex Spach, Hist. Vég. Phan. 10: 321--323. 1841 = *Scabiosa atropurpurea* L., *Dipsacaceae*
Cyrtostemma atropurpureum Spach ex Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 705 in syn. 1893 = *Scabiosa atropurpurea* L., *Dipsacaceae*
Cyrtostemma maritimum Fourr., Ann. Soc. Linn. Lyon, ser. 2, 16: 401. 1808 = *Scabiosa maritima* L., *Dipsacaceae*
Douglasia Heist. ex Post & Kuntze, Lex. 185 in syn. 1904 = *Nerine* Herb., *Amaryllidaceae*
Douglasia Lindl. in Brande, Journ. Sci. 1827: 385. 1827 -- in the *Primulaceae*
Douglasia Schreb. ex Mold., Phytol. Mem. 2: 397 in syn. 1980 = *Aiouea* Aubl., *Lauraceae*
Douglasia arctica Hook., Fl. Bor.-Amer. 2: 120. 1838 -- in the *Primulaceae*
Douglasia dentata S. Wats., Proc. Amer. Acad. Sci. 17: 375. 1882 = *D. nivalis* Lindl., *Primulaceae*

Douglasia laevigata A. Gray, Proc. Amer. Acad. Sci. 16: 105. 1881 -- in the *Primulaceae*

Douglasia montana A. Gray, Proc. Amer. Acad. Sci. 7: 371. 1868 -- in the *Primulaceae*

Douglasia nivalis Lindl. in Brande, Journ. Sci. 1827: 383. 1827 -- in the *Primulaceae*

Douglasia vitaliana Benth. & Hook. f., Gen. Pl. 2 (1): 632. 1876 -- in the *Primulaceae*

Douglassia Auct. ex Mold., Phytol. Mem. 2: 397 in syn. 1980 = *Aiouea* Aubl., *Lauraceae*

Douglassia "Auct. corr. Durand" ex Post & Kuntze, Lex. 185 in syn. 1904 = *Aiouea* Aubl., *Lauraceae*

Douglassia Durand ex Mold., Phytol. Mem. 2: 397 in syn. 1980 = *Aiouea* Aubl., *Lauraceae*

Douglassia Heist. ex Airy Shaw in J. C. Willis, Dict. Flow. Pl., ed. 8, 387 in syn. 1973 = *Nerine* Herb., *Amaryllidaceae*

Douglassia Reichenb., Conspect. Reg. Veg. 1: 128. 1828 = *Douglasia* Lindl., *Primulaceae*

Douglassia Schreb. in L., Gen. Pl., ed. 8 [9], 2: 809. 1791 = *Aiouea* Aubl., *Lauraceae*

Douglassia laurina J. E. Sm. in Rees, Cyclop., imp. 1 [London], 12: *Douglassia*. 1809 = *Aiouea guianensis* Aubl., *Lauraceae*

Duglassia Lindl. ex Schau. in A. DC., Prodr. 11: 656 in syn. 1847 = *Douglasia* Lindl., *Primulaceae*

Jasminum L. apud Prain, Ind. Kew. Suppl. 4, imp. 1, 132. 1913 = *Jasminum* Tourn., *Oleaceae*

Jasminum Tourn. ex L., Syst. Nat., ed. 1, imp. 1, 1735; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 1249. 1893 -- in the *Oleaceae*

Jasminum [Tourn.] L. ex Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 1249. 1893 = *Jasminum* Tourn., *Oleaceae*

Ovieda Spreng., Anleit. 2 (1): 258. 1817 = *Lapeirousia* Pourr., *Iridaceae*

Ovieda aculeata Klatt, Linnaea 32: 777. 1863 = *Lapeirousia compressa* Pourr., *Iridaceae*

Ovieda anceps Spreng. in L., Syst. Veg., ed. 16 [=17], 1: 147. 1824 = *Lapeirousia compressa* Pourr., *Iridaceae*

Ovieda bracteata (Ker-Gawl) Spreng. in L., Syst. Veg., ed. 16 [=17], 1: 147. 1824 = *Lapeirousia fissifolia* Ker-Gawl, *Iridaceae*

Ovieda corymbosa (Ker-Gawl) Spreng. in L., Syst. Veg., ed. 16 [=17], 1: 147. 1824 = *Lapeirousia corymbosa* Ker-Gawl, *Iridaceae*

Ovieda erythrantha Klotzsch in Peters, Naturwiss. Reise Mossamb. 6 [Bot.] 2: 516. 1864 = *Lapeirousia erythrantha* (Klotzsch) J. G. Baker, *Iridaceae*

Ovieda fabricii (Ker-Gawl) Spreng. in L., Syst. Veg., ed. 16 [=17], 1: 147. 1824 = *Lapeirousia fabricii* Ker-Gawl, *Iridaceae*

Ovieda falcata (Ker-Gawl) Spreng. in L., Syst. Veg., ed. 16 [=17], 1: 147. 1824 = *Lapeirousia falcata* Ker-Gawl, *Iridaceae*

Ovieda fasciculata Spreng. in L., Syst. Veg., ed. 16 [=17], 1: 147. 1824 = *Lapeirousia fissifolia* Ker-Gawl, *Iridaceae*

Ovieda fistulosa Spreng. ex Klatt, Linnaea 32: 781. 1863 = *Lapeirousia fistulosa* (Spreng.) J. G. Baker, *Iridaceae*

Ovieda micrantha E. Mey. ex Klatt, Linnaea 32: 781. 1863 = *Lapeirousia micrantha* (E. Mey.) J. G. Baker, *Iridaceae*
Ovieda purpureo-lutea Klatt, Linnaea 32: 780. 1863 = *Lapeirousia purpureo-lutea* (Klatt) J. G. Baker, *Iridaceae*
Ovieda silenoides (Ker-Gawl) Spreng. in L., Syst. Veg., ed. 16 [=17], 1: 147. 1824 = *Lapeirousia silenoides* Ker-Gawl, *Iridaceae*
Petasites Gaertn. apud Prain, Ind. Kew. Suppl. 4, imp. 1, 177. 1913 = *Petasites* Tourn., *Carduaceae*
Petasites L. apud Prain, Ind. Kew. Suppl. 3: 133. 1908 = *Petasites* Tourn., *Carduaceae*
Petasites Mill. apud A. W. Hill, Ind. Kew. Suppl. 6: 191. 1926 = *Petasites* Tourn., *Carduaceae*
Petasites (Tourn.) L. apud Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 2: 477. 1906 = *Petasites* Tourn., *Carduaceae*
Petasites [Tourn.] L. apud Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 2: 477. 1895 = *Petasites* Tourn., *Carduaceae*
Siphonanthus Schreb. ex Baill., Etud. Gén. Euph. 324. 1858 = *Hevea* Aubl., *Euphorbiaceae*
Siphonanthus "Schreb. ex Baill." apud Airy Shaw in J. C. Willis, Dict. Flow. Pl., ed. 8, 1070 in syn. 1973 = *Hevea* Aubl., *Euphorbiaceae*
Siphonanthus elasticus Schreb. ex Baill., Etud. Gén. Euph. 326. 1858 = *Hevea elastica* (Schreb.) Karst., *Euphorbiaceae*
Spironema Lindl. in Edwards, Bot. Reg. 26: pl. 47. 1840 = *Rectanthera* Degener, *Commelinaceae*
Spironema Raf., Fl. Tellur., imp. 1, 4: 92. 1838 = *Cassytha* L., *Cassythaceae*
Spironema aphylla Raf., Fl. Tellur., imp. 1, 4: 92. 1838 = *Cassytha filiformis* L., *Cassythaceae*
Spironema fragrans Lindl. in Edwards, Bot. Reg. 26: pl. 47. 1840 = *Rectanthera fragrans* (Lindl.) Degener, *Commelinaceae*
Spironema orthandrum Lindb., Act. Soc. Sci. Fenn. 10: 127, pl. 4. 1871 = *Rectanthera orthandrum* (Lindb.) Degener, *Commelinaceae*
Spironema robbinsii C. Wright in Sauv., Fl. Cub. 158. 1873 = *Callisia repens* L., *Commelinaceae*
Spironema warszewiczianum Hassk. ex C. B. Clarke in A. P. & A. C. DC., Monog. Phan. 3: 302. 1881 = *Tradescantia warszewicziana* Kunth & Bouché, *Commelinaceae*
Tetrathyranthus A. Gray apud Durand, Ind. Gen. Phan. 322. 1888; Dalla Torre & Harms, Gen Siphonog., imp. 1, 433 in syn. 1904 = *Faradaya* F. Muell.
Torreya Arn., Ann. Nat. Hist., ser. 1, 1: 130. 1838 -- in the *Taxaceae*
Torreya Croom ex Meisn., Pl. Vasc. Gen. 2 [Comm.]: 340. 1843 = *Croomia* Torr., *Croomiaceae*
Torreya "Croom ex Meisn." apud Airy Shaw in J. C. Willis, Dict. Flow. Pl., ed. 8, 1160 in syn. 1973 = *Croomia* Torr., *Croomiaceae*
Torreya "Croom. ex Mesin." apud Soukup, Biota 11: 10 in syn. 1976 = *Croomia* Torr., *Croomiaceae*
Torreya Eaton, Man. Bot. N. Amer., ed. 5, 400. 1829 = *Nuttallia* Raf., *Loasaceae*
Torreya Raf., Amer. Monthly Mag. 3: 356. 1818 = *Synandra* Nutt., *Lamiaceae*

Torreya Raf., Journ. Phys. Chim. Hist. Nat. 89: 105. 1819 = *Cyperus* L., *Cyperaceae*
Torreya bogotensis Linden, Cat. 12. 1870 -- in the *Taxaceae*
Torreya caespitosa Raf., Journ. Phys. Chim. Hist. Nat. 89: 105. 1819 = *Cyperus filicinus* Vahl, *Cyperaceae*
Torreya californica Torr., N. Y. Journ. Pharm. 3: 49. 1852 -- in the *Taxaceae*
Torreya grandiflora Raf., Amer. Monthly Mag. 3: 356. 1818 = *Synandra hispidula* (Michx.) Britton, *Lamiaceae*
Torreya grandis Fortune ex Gord., Pinet., ed. 1, 326. 1858 -- in the *Taxaceae*
Torreya humboldtii Hort. ex Lindl. & Gord., Journ. Roy. Hort. Soc. 5: 226. 1850 = *Podocarpus taxifolia* H.B.K., *Podocarpaceae*
Torreya maritima Raf., Journ. Phys. Chim. Hist. Nat. 89: 105. 1819 = *Cyperus filicinus* Vahl, *Cyperaceae*
Torreya montana Hort. ex Lindl. & Gord., Journ. Roy. Hort. Soc. 5: 229. 1850 = *Podocarpus taxifolia* H.B.K., *Podocarpaceae*
Torreya myristica Hook., Curtis Bot. Mag. 80 [ser. 3, 10]: pl. 4780 = *T. californica* Torr., *Taxaceae*
Torreya nucifera Sieb. & Zucc., Abhandl. Akad. Wiss. Muench. Math.-Phys. 3 (4): 234. 1846 -- in the *Taxaceae*
Torreya taxifolia Arn., Ann. Nat. Hist., ser. 1, 1: 130. 1838 -- in the *Taxaceae*
Volcameria Heist. ex Fabr., Enum. Meth. Pl., ed. 1, 55. 1759 = *Cedronella* Moench, *Lamiaceae*
Volckameria Fabr. apud Airy Shaw in J. C. Willis, Dict. Flow. Pl., ed. 8, 1216 in syn. 1973 = *Cedronella* Moench, *Lamiaceae*
Volckameria Heist. ex Fabr., Enum. Meth. Pl. ed. 2, 102. 1763 = *Cedronella* Moench, *Lamiaceae*
Volkamera P. Br. ex Post & Kuntze, Lex. 589 in syn. 1904 = *Clethra* Gron., *Clethraceae*
Volkamera Burm. ex Post & Kuntze, Lex. 589 in syn. 1904 = *Capparis* Tourn., *Capparidaceae*
Volkamera "Heist.-Fabr." ex Post & Kuntze, Lex. 589. 1904 = *Cedronella* Moench, *Lamiaceae*
Volkamera "L. (1735)" ex Post & Kuntze, Lex. 589 in syn. 1904 = *Sesamum* L., *Pedaliaceae*
Volkamera P. & K. apud Airy Shaw in J. C. Willis, Dict. Flow. Pl., ed. 7, 1186 in syn. 1966 = *Capparis* Tourn., *Capparidaceae*
Volkameria P. Browne, Civil Nat. Hist. Jamaic., ed. 1, 214, pl. 21, fig. 1. 1756 = *Clethra* Gron., *Clethraceae*
Volkameria Burm. ex Pfeiffer, Nom. Bot. 2 (2): 1598 in syn. 1874 = *Capparis* Tourn., *Capparidaceae*
Volkameria Burm. f. ex Mold., Résumé Suppl. 16: 30 in syn. 1968; Airy Shaw in J. C. Willis, Dict. Flow. Pl., ed. 8, 1216 in syn. 1973 = *Capparis* Tourn., *Capparidaceae*
Volkameria alata (Schumach.) Kuntze, Rev. Gen. Pl. 1 (2): 482. 1891 = *Sesamum alatum* Thonn., *Pedaliaceae*
Volkameria angolensis (Oliv.) Kuntze, Rev. Gen. Pl. 1 (2): 482. 1891 = *Sesamum angolense* Oliv., *Pedaliaceae*
Volkameria antirrhinoides (Asch.) Kuntze, Rev. Gen. Pl. 1 (2): 482. 1891 = *Sesamum antirrhinoides* Asch., *Pedaliaceae*

Volkameria calycina (Oliv.) Kuntze, Rev. Gen. Pl. 1 (2): 482. 1891 = *Sesamum calycinum* Oliv., *Pedaliaceae*

Volkameria capensis Burm. ex Walp., Repert. Bot. Syst. 4: 101. 1845 = *Capparis volkameria* P. DC., *Capparidaceae*

Volkameria capensis Burm. f., Prod. Fl. Cap. 17. 1768 = *Capparis volkameria* P. DC., *Capparidaceae*

Volkameria foliis petiolatis, cordatis, ovatis, integerrimis, paniculа corymbosa, terminali, ramulis dichotomis L. f. ex Lam., Encycl. Méth. Bot. 8: 69 in syn. 1808 = *Glossocarya scandens* (L. f.) Trimen

Volkameria inermis Reinw. ex Blume, Mus. Bot. Lugd.-Bat. 1: 239. 1850 = *Geniostoma rupestre* Forst., *Loganiaceae*

Volkameria laciniata (Willd.) Kuntze, Rev. Gen. Pl. 1 (2): 482. 1891 = *Sesamum laciniatum* Willd., *Pedaliaceae*

Volkameria lamiifolia (Engl.) Kuntze, Rev. Gen. Pl. 1 (2): 482. 1891 = *Sesamum lamiifolium* Engl.,

Volkameria macrantha (Oliv.) Kuntze, Rev. Gen. Pl. 1 (2): 482. 1891 = *Sesamum macranthum* Oliv., *Pedaliaceae*

Volkameria marlothii (Engl.) Kuntze, Rev. Gen. Pl. 1 (2): 482. 1891 = *Sesamum marlothii* Engl., *Pedaliaceae*

Volkameria odorata Buch.-Ham. ex Mold., Prelim. Alph. List Inv. Names 53 in syn. 1940 = *Caryopteris odorata* (Hamilt.) B. L. Robinson

Volkameria odorata (Buch.-Ham.) Roxb. apud Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 2: 1219. 1895 = *Caryopteris odorata* (Hamilt.) B. L. Robinson

Volkameria odorata Hamilt. ex Roxb., Hort. Beng., imp. 1, 46. 1814 = *Caryopteris odorata* (Hamilt.) B. L. Robinson

Volkameria odorata Roxb. ex Voigt, Hort. Suburb. Calc. 466. 1845 = *Caryopteris odorata* (Hamilt.) B. L. Robinson

Volkameria odoratissima Fisch. ex Steud., Nom. Bot., ed. 1, 890. 1821 -- identity unknown

Volkameria odoratissima Wall., Numer. List 87, no. 1812E hyponym. 1831 = *Caryopteris odorata* (Hamilt.) B. L. Robinson

Volkameria orientalis (L.) Kuntze, Rev. Gen. Pl. 1 (2): 481. 1891 = *Sesamum indicum* L., *Pedaliaceae*

Volkameria orientalis var. *indica* (L.) Kuntze ex Mold., Résumé 392 in syn. 1959 = *Sesamum indicum* L., *Pedaliaceae*

Volkameria orientalis γ *indica* (L.) Kuntze, Rev. Gen. Pl. 1 (2): 481. 1891 = *Sesamum indicum* L., *Pedaliaceae*

Volkameria orientalis var. *indivisa* (DC.) Kuntze ex Mold., Résumé 392 in syn. 1959 = *Sesamum indicum* α *subindivisum* P. DC., *Pedaliaceae*

Volkameria orientalis α *indivisa* (DC.) Kuntze, Rev. Gen. Pl. 1 (2): 481. 1891 = *Sesamum indicum* α *subindivisum* P. DC., *Pedaliaceae*

Volkameria orientalis f. *plurivalvis* Kuntze, Rec. Gen. Pl. 1 (2): 48;. 1891 =*Sesamum indicum* f. *plurivalve* (Kuntze) Mold.

Volkameria orientalis β *subdentata* (DC.) Kuntze, Rev. Gen. Pl. 1 (2): 481. 1891 = *Sesamum indicum* β *subdentatum* P. DC., *Pedaliaceae*

Volkameria pentaphylla (E. Mey.) Kuntze, Rev. Gen. Pl. 1 (2): 482. 1891 = *Sesamum capense* Burm. f., *Pedaliaceae*

Volkameria prostrata (Retz.) Kuntze, Rev. Gen. Pl. 1 (2): 482. 1891 = *Sesamum prostratum* Retz., *Pedaliaceae*

Volkameria ramis inferioribus ternis, superioribus oppositis; foliis acuminatis, glabris; floribus solitariis, subsessilibus Lam., Encycl. Meth. Bot. 8: 691 in syn. 1808 = *Rhaphithamnus spinosus* (A. L. Juss.) Mold.
Volkameria scandens L. f., Suppl. Pl., imp. 1, 292. 1781 = *Glossocarya scandens* (L. f.) Trimen
Volkameria schenkii (Asch.) Kuntze, Rev. Gen. Pl. 1 (2): 482. 1891 = *Sesamum schenkii* Asch., *Pedaliaceae*
Volkameria schinziana (Asch.) Kuntze, Rev. Gen. Pl. 1 (2): 482. 1891 = *Sesamum schinzianum* Asch., *Pedaliaceae*
Volkameria sesamodes (Van Houtte) Kuntze, Rev. Gen. Pl. 1 (2): 482. 1891 = *Sesamum sesamoides* Van Houtte, *Pedaliaceae*
Volkameria spinosa A. L. Juss., Ann. Mus. Hist. Nat. Paris 7: 76. 1806 = *Rhaphithamnus spinosus* (A. L. Juss.) Mold.
Volkameria triphylla (Asch.) Kuntze, Rev. Gen. Pl. 1 (2): 482. 1891 = *Sesamum triphyllum* Asch., *Pedaliaceae*
Volkameria uniflora Dombey ex Mold., Feddes Repert. Spec. Nov. 42: 70. 1937 = *Rhaphithamnus spinosus* (A. L. Juss.) Mold.
Volkameria uniflora Richard ex Mold., Phytologia 43: 312. 1979 = *Rhaphithamnus spinosus* (A. L. Juss.) Mold.
Volkameria verticillata Ruiz & Pav. ex Walp., Repert. Bot. Syst. 4: 73. 1845 = *Rhaphithamnus spinosus* (A. L. Juss.) Mold.
Volkameria sp. W. Griff., Itin. Notes [Posthum. Pap. 2:] 128. 1898 = *Rhaphithamnus spinosus* (A. L. Juss.) Mold.
Volkmannia Sternb., Vers. Geog. Darst. 1 (4): xxix. 1825 -- in the *Naiadaceae*

In regard to the *Volkameria odoratissima* Fisch., listed above: it is listed in both the 1821 edition of Steudel's work and in ed. 2, 780 (1840) as of doubtful identity. In the former work Steudel merely states that it is a perennial; in his 1840 work he says only "Hort. Gor. -- †" -- the abbreviation "Gor." is not listed among his explained abbreviations; the dagger indicates "planta dubia, nec rite cognia".

CLERODENDRUM ACERBIANUM (Visiani) Benth. in Benth. & Hook. f., Gen. Pl. 2 (2): 1156 [as "*Clerodendron acerbiana*"]. 1876; B. Thomas, Engl. Bot. Jahrb. 68: 89 & 92. 1936.

Synonymy: *Volkameria acerbiana* Visiani, Icon. Pl. Aegypt. Nub. 23, pl. 4, fig. 1. 1836. *Cornacchinia fragiformis* Savi, Mem. Mat. Fis. Soc. Ital. Sci. Modena 21: 184--185, pl. 7. 1837. *Clerodendron acerbianu* (Visiani) Benth. in Benth. & Hook. f., Gen. Pl. 2 (2): 1156. 1876. *Clerodendron acerbiana* (Visiani) Boiss., Fl. Orient., imp. 1, 4: 536. 1879. *Clerodendron acerbiana* Benth. & Hook. f. apud Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 560. 1893. *Clerodendron holstii* Gürke, Abhandl. Preuss. Akad. Wiss. 122: 27. 1894. *Clerodendron acerbianum* (Vis.) Benth. ex Briq. in Engl. & Prantl, Nat. Pflanzenfam., ed. 1, 4 (3a): 176. 1895. *Clerodendrum acerbianum* (Vis.) Benth. & Hook apud B. Thomas, Engl. Bot. Jahrb. 68: 89 & 92. 1936. *Clerodendron acerbianum* Boiss. ex Mold., Suppl. List Inv. Names 2 in syn. 1941. *Clerodendron acerbianum* (Visiani) Benth. & Hook. ex Mold., Alph. List Inv. Names 16 in syn. 1942; Glover, Prov. Check List Brit. Ital. Somal. 266. 1947. *Clerodendron acerbiana* Benth.

& Hook. f. ex Mold., Alph. List Inv. Names Suppl. 1: 5 in syn. 1947. *Clerodendron acerbianum* (Visian) Boiss. apud Parsa, Fl. Iran 4 (1): 543. 1949. *Volkameria acerb.* Visian ex Parsa, Fl. Iran 4 (1): 542 in syn. 1949. *Clerodendron acerbianum* Benth. & Hook. f. ex Montasir & Hassib, Illust. Fl. Egypt 1: 388--389. 1956. *Clerodendrum acerbianum* (Vis.) Benth. & Hook. f. ex Mold., Fifth Summ. 1: 390 in syn. 1971.

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Illustrations: Visiani, Icon. Pl. Aegypt. Nub. pl. 4, fig. 1. 1836; Parsa, Fl. Iran 4 (1): 542, fig. 255. 1949.

[to be continued]